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REFUSE DESTRUCTION

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ONE of the primary duties of a municipal authority is to dispose of the waste products of a city, quickly, hygienically and economically. Such duty, however, is a somewhat difficult one to carry out, sometimes. The satisfactory disposal of sewage, for example, has engaged the attention of specialists for many years, and it must be acknowledged that in a great number of places the efforts to efficiently treat sewage have more or less been failures, for a satisfactory effluent is to be found in only a few places. Yet, a solution must and will be found for this problem, and meanwhile communities are perforce to adopt the best available process.

In the matter of refuse disposal, the situation is somewhat dissimilar, for a large number of towns have surmounted the difficulties with good results.

The temptation is to dispose of the refuse by the easiest, even if it is not the most sanitary means. Refuse tips are plentiful but the modern tendency is to abolish such dumping grounds as are used without discrimination, and adopt some other method.

It is somewhat late in the day of advanced sanitation for filth to be deposited on the outskirts of a city without care or consideration and thereby be an annoyance to the people who are dwelling in the neighborhood, if not create a menace to the public health.

Town refuse consists of such a heterogeneous mixture, it varies in every load, every day and in every place. In cooler climes there is a larger proportion of ashes, whilst in warmer latitudes vegetables and other refuse will be more pronounced. Refuse from towns in districts of high rainfall and humidity will probably be more moist and resistent to fire than in districts of low rainfall and humidity, in spite of the receptacles being usually covered.

The quantity of refuse produced per capita in Europe is less than in America and as a rule no division is made for the purpose of collection.

In America town refuse is often divided into three main classes, garbage, which "consists of organic waste or residue of animal, fruit or vegetable matter, and any matter or substance used in the preparation, cooking, dealing or storage of meat, fowls, fruit or vegetables," ashes, which "constitute waste due to the combustion of coal or other combustible material from residences, manufactories or business places and consists of fine ash, clinker and unburned coal," rubbish, which consists of discarded and useless waste matters from residences or places of business not classified as garbage or ashes such as paper, straw, excelsior, rags, bottles, old clothes, shoes, tin cans and other like waste materials." (1). There are other

(1) Report of the City Waste Commission of Chicago, 1914.

refuse such as manure, street sweepings, dead animals, night soil, sludge etc.

In America the collection of town refuse is often made separately for each class named. Separate receptacles have to be provided and the contractors or the municipal authority make periodical calls to remove each class of refuse. Much depends upon the frequency of such collections, as to the cost of the work and the efficacy of this system. Daily removal by municipal forces will obviate practically all nuisance, and if rightly organized a combined collection can be as economically done, if not more so, than insisting on the wrapping of garbage in paper and the separate collection at less frequent intervals. It can be easily understood that the separation of garbage, ashes and rubbish entails the loyal support of the householders and the ordinary experience is that the simpler the duties imposed upon the householders and others, the more likely they are to be performed.

The common method of refuse disposal is by dumping it into depressions or pits or on waste land. Reference has already been made to this and it is therefore necessary only to state that progressive authorities are becoming more insistent, that such a method is not desirable in well governed cities, unless due care is taken to cover the refuse with earth or other deodorant.

The disposal of garbage on pig farms is repugant to the minds of all citizens having a high regard for the welfare of the people, and for the production of food by clean methods. It is stated that about 75 pigs are necessary to dispose of one ton of garbage daily. (2).

In Los Angeles, Cal., the garbage piggery was investigated by the Grand Jury. They reported that "the investigation of this Grand Jury shows that at the present time (March 1912) there are located on the hog-ranch about 21,000 head of hogs, that the percentage of death of the hogs ranges from 40 to 65. We find further that the percentage of tubercular hogs on this ranch ranges from 10 to 20. Of this number two per cent. are condemned by the health officials, the other portion being placed on the market. We further find that cholera strike, swine plague or swine fever is prevalent at the ranch at all times. In fact we find that at the present time this hog-ranch is quarantined for all purposes except for the purpose of slaughtering for food." (2).

It is probably unnecessary to add to the foregoing indictment. The writer is unaware if this practice prevails in Canada.

It may be stated that a Contractor has recently been awarded the contract for the disposal of the garbage of Los Angeles by means of a garbage reduction plant. The city is to receive 51 cents per ton for the garbage. (3).

Two cities in the United States own Garbage reduction plants namely, Columbus and Cleveland, Ohio. There are other cities where Contractors have erected reduction plants to deal with the garbage of these cities.

This method was first introduced in Germany, (where, curiously, it is not much used to-day,) and later on, it was introduced in to the United States It is similar to the plants installed in packing houses to dispose of the offal and to convert it into saleable by-products. Some of the reduction plants are operated on the "drying method" but the "cooking method" is stated to be the most satisfactory. The process consists of placing the garbage in steel digestor tanks, and when about 10 tons are so disposed of, the valves are closed and steam is admitted. After a few hours cooking, the mixture is pressed to extract the free grease and the moisture. The solid matter is then dried and afterwards saturated with naptha, gasoline or other solvents to dissolve the remaining grease. The solvent is recovered by distillation and the grease and tankage are sold to buyers, who refine the grease for various purposes, and the tankage is used for fertilizers.

Columbus is a city of about 185,000 inhabitants and the reduction plant has cost about $220,000. The sale of the grease and tankage brings more revenue than is sufficient to pay the cost of operation, plus the capital charges, as will be seen below.

(2) Refuse Disposal in small cities and towns, by Samuel A. Greeley Illiois Society of Civil Engineers, 1913.

(3) Journal of Cleveland Engineering Society, March, 1914.

Financial statement for 1913.

1,095,594 lbs of grease sold	$40,839.35
2,095 tons of tankage sold ..	14,223.31
Hides.	1,247.39
Miscellaneous.	489.73
Total receipts.	$56,799.78
Total operating expenses ..	$39,560.25
Gross profit	$17,239.53
Allowing 4 per cent. interest and 20 years sinking fund	$16,292.00
Net profit	$947.53

The total quantity of garbage received was 20,710.74 tons, so the net profit amounted to about 4.57 cents per ton.

Garbage, however, is only one portion of town refuse and incidentally, it may be mentioned that the householders in this large city, have to dispose of their refuse, other than garbage, by arranging with any one of the 140 private contractors. (4).

Columbus is now installing a Sterling destructor to cremate rubbish only. Natural gas is available and consequently the proportion of ashes is stated to be small.

Garbage reduction plants are capable of being operated with profit, in cities of over 100,000 inhabitants. Mr. C. O. Bartlett however, expresses the opinion that any small place producing one ton of garbage per day can be successfully treated in this manner.

A full description of the reduction plant erected at Boston for the Boston Development and Sanitary Company, is to be found in the Engineering Record of May 10th, 1913 and of the Columbus plant in Mr. Irwin S. Osborn's report of January 1st, 1913 to which those interested in this process are referred for further particulars.

A number of towns in Britain have adopted the Lightning Dust Manipulator, for instance Southwark a large borough in London, Halifax, Hove and others. The process consists in pulverizing the raw refuse into manure. This is done by means of high speed revolving hammers striking the refuse against the breaking block and a final disintegration effected by trituration between the hammers and the grinding plate. Southwark sells about 20,000 tons of manure annually. The manure is similar to black mold and as the Southwark works are located in a populous part of London, and the plant has recently been extended the process is practically inoffensive. Hove is one of the fashionable seaside resorts in South England and Halifax is a large commercial centre in Yorkshire.

The text of this paper is Refuse Destruction and the remainder of the writer's observations will be confined to it.

For the sake of a clearer definition, furnaces operated at a temperature of about 1,500 degrees Fahr. or less will be called incinerators and those which have a working temperature of over 1,500 degrees will be called destructors. In America these furnaces are called low and high temperature incinerators, respectively. It seems preferable to know what is referred to by a distinctive name, rather than by a qualifying term which is often omitted.

Fire is the oldest and best known method of disposing of offensive rubbish. It has been adopted by all races and in all ages, with more or less satisfaction. Burying offensive matter is another ancient and effective way of getting rid of such matter.

The first engineer who successfully designed a furnace to effectually destroy town refuse by fire was Mr. Alfred Fryer of Nottingham, England. This was in 1874. He built two such furnaces in Manchester in 1876 and these have been extended and improved and are still in use which fact, at least suggests that Fryer had evolved a scheme based on right principles.

This innovation, however met with a hostile reception. The public prejudices against the adoption of such furnaces were so strong that it is surprising it survived.

Following Fryer, there were several aspirants who claimed to have designed furnaces superior to Fryer's for example Pickard's "Gommand," Wilkinson of Birmingham, Healy of Brighouse, Heard of Paddington, Burton of London. Stafford and Pearson and others, but Fryer's furnace held its position. These and some which were designed later on were of the incinerator class—low temperature, slow burning, producing soft clinker and obnoxious gases. Mr. Charles Jones (Ealing) in 1885 introduced his "fume crema-

(4) Report on Disposal of Refuse, Newark, N. J. 1912.

tor" which was an ample proof that something was needed to improve the combustion.

Mr. William Horsfall in 1887 brought out the first high temperature furnace, which improvement gave a new impetus to the process. Horsfall also improved the furnace by arranging for a front exhaust of gases, by which means all gases had to pass over the active grate before being discharged and by so doing the fume cremator was found to be unnecessary and was ultimately abandoned.

From 1887 to the present time many improvements have been introduced, such as steam jet blowers, forced air draft, regenerators or air preheaters, continuous grates, twin grates, mechanical feeders and clinkering, dust catchers, steam producers, and so on. To deal with each of these would entail a long paper, as each maker has devised certain features in connection with furnaces etc. They will, therefore be referred to collectively as far as possible.

Incinerators, then, are the survivors of the earliest types and destructors are the later developments.

Incinerators are furnaces capable only of slow combustion and require some form of drying-hearth or device for reducing the moisture contained in the refuse, preparatory to cremation. Some incinerators are charged with large quantities of refuse at one operation, the result being the lowering of the temperature of the furnace, the prolonging of the period of cremation as the combustion is more often local than general, the passage of green gases and the production of soft clinker and little steam. An analysis of the gases and a record of the maximum and minimum temperatures in incinerators will doubtless show that the work done is not altogether satisfactory.

Experience has shown that with destructors, the same as with other furnaces, the percentage of carbon dioxide, oxygen and carbon monoxide contained in the gases in the main flues is in proportion to the completeness of the combustion of the fuel and the carefulness of firing and clinkering.

It is manifest that not even the best coal-fired furnace can produce satisfactory percentages of the above constituent gases of combustion unless the temperature of the furnace is uniformly maintained, the range of heat fluctuations kept as small as possible, the quantity of primary and secondary air supplied is controlled to satisfy as nearly as practicable the requirements of the fuel used, and that the fuel is charged in small and regular quantities. Although coal is not usually quite constant in its calorific quality, it is vastly more so than town refuse, and if care is needed in the case of coal-fired furnaces, it is reasonable to advocate somewhat similar care in the cremation of refuse, if scientific and sanitary results are to be achieved.

Many incinerators require coal or other fuel to assist in the combustion of refuse, although the proportion of combustible matter in such refuse approximates that contained in refuse in other places where with destructors no other fuel is required or used, and good clinker and power are produced.

Engineers have during the last century developed the design of coal furnaces for steam raising and countless other purposes. Different grades of coal require different types of grates etc. It would not be expected that a grate designed to burn steam coal with the maximum of efficiency would produce good results if bark was consumed.

A prudent manufacturer who requires a furnace for any ordinary industrial purpose would ordinarily adopt one that has already proven efficient, and if for any special purpose which needed some experimentation, he would start where others had left off, (unless he had good reasons for doing otherwise), and so make use of whatever knowledge that was available.

Bearing in mind what has been achieved in many parts of the world with destructors, it would seem inadvisable to erect incinerators.

The more municipal engineers investigate this important problem, the more readily they will appreciate the necessity for the fullest consideration of the capabilities of various types of furnaces which it is contemplated to install.

There are several makers of destructors and incinerators on the market, and the Writer does not propose to exploit any particular one. Each maker claims to have some features of superiority over

others and doubtless some do possess certain advantageous qualities.

The original furnaces were top-fed and some are now being built on this plan, but in course of the last ten years or so back feed and front feed arrangements are found to answer rather better. Top feeding allows of mechanical labor saving devices to be used, but even then it entails more arduous labor to the men below in raking in the material by long rakes over the fires. Back feeding was introduced in 1891 and is claimed to be under better control whilst front feeding means a better concentration of labor. Conditions will vary in different places and these must be taken into account when deciding the method of feeding.

Destructor furnaces require a strong draft in addition to the normal pull of the chimney, although as one writer stated that since it has been demonstrated that incandescence can be maintained apart from the use of fans and regenerators, the question to be considered is whether it is good practice to run machines which absorb up to 15 per cent of the total steam produced. (5) The steam jet is a simple, effective and economical blower, and the fan, being entirely mechanical, is more subject to wear and tear and liable to breakdowns and therefore should be in duplicate. The furnace pressure should be in balance, that is, the force of the blast under the furnace should be slightly in excess of the draw of the chimney, so as to render the intake of air at the doors during the time charging or clinkering takes place, as nearly nil as possible. The aim, nevertheless, of the furnacemen is to have these doors opened as few times as possible.

The advantage of either forms of blast does not appear to be very pronounced and to provide for all contingencies, the makers now usually include both in recent installations.

Preheating of primary air is claimed to be of considerable value. The air after being preheated absorbs the moisture in the refuse most readily, and this is found to be done sufficiently quickly that refuse can be cremated without the intervention of a drying-hearth. In ordinary steam boiler practice, preheated air is found to be of much value, for it increases the amount of water evaporated per hour. Brislee (6) gives an example of the advantage of preheated air. Two boilers were tested with the following results..

Weight of water evaporated in pounds of water per hour—No. 1 boiler, cold air 22,910, hot air 40,996; No. 2 boiler, cold air 15,800, hot air 24,600.

This increased evaporation was due to the extra heat brought into the furnace and the increased rate of combustion of fuel due to it.

In the case of the boiler No. 1 the evaporation was increased 79 per cent. and the No. 2, 55.4 per cent.

Brislee points out that if air is heated before combustion is allowed to take place, then the heat in the air is added to the heat of combustion, and the quantity of heat available for raising the temperature of the products is therefore greater. In other words conditions being equal in other respects, the preheating of air means economy of coal and the increased output of the boiler.

In destructors, regenerators, however, do not constitute the only method of preheating of air. Regenerators consist of stacks of pipes, through which the hot gases pass out on their way to the chimney and around which the cold air passes into the furnaces. The sensible heat of the hot gases is partially imparted to the cold air and in this way the temperature of the air is increased from 200 to 300 degrees or often more. This, of course means the conservation of heat which would otherwise be lost in the chimney. Such regenerators offer some obstruction to the outgoing gases and to the incoming air, and to overcome this it is necessary to absorb some energy in driving fans. About 5 to 10 per cent. of the total steam produced from the refuse is thus utilized. Regenerators have in some instances been taken out for different reasons. It is easy to arrange for the primary air to be heated by passing it through flues built in the walls of the furnaces. This is being done in gasworks practice and has been found to be very effective. Indeed such method of preheating air or an adaptation of the idea is provided in some destructors. Incidentally, the air required for the furnaces is taken from the vicinity of the refuse

(5) Surveyor, January 31st, 1913.

(6) Brislee. Introduction to Study of Fuel, 1912.

and by this means the building is ventilated.

Continuous grates in one chamber are supplanting individual cells and grates and the advantage is evident. In the case of individual or single cells when refuse is charged into the furnace, it has the tendency of lowering the temperature of that cell, and the effectual mixture and burning of the gases must take place in the combustion chamber. Whereas in the case of the continuous grates, two or more grates are built side by side in one chamber with independent ashpits beneath. When any refuse is charged into any one of these grates, the cooled gases therefrom are mingled and burnt in the furnace itself and no green gases can escape into the combustion chamber without first passing over an incandescent body. Meldrum's Simplex Destructor was the first constructed on this principle and its usefulness was appreciated by other makers. Heenan and Froude, Horsfall, Fryer, Dawson and Manfield and other destructor builders now design some form of continuous, twin or series grates.

Mechanical stocking and clinkering and other forms of labor saving devices are installed in a number of destructors. Boulnois and Brodie's charging trucks, Marten's charging apparatus, Horsfall's tub feed, Heenan and Froude's hydraulic feeder and others are examples of the methods most in use. Heenan & Froude's trough grate and hydraulic ram clinkering machine and Sterling's clinkering grate are installed in many plants. According to Mr. Fetherston's report (7) the arduous work of charging and clinkering at the Clifton (New York) destructor has been reduced by the use of the hydraulic ram charger and clinkerer and trough grate.

Mr. Fetherston, however, expresses his opinion that some time must elapse before the complete economy of the mechanical devices is demonstrated.

Conveyors have been tried in several installations, but owing to the heterogeneous character of the refuse, they have not always been found to answer. The same remark applies to refuse elevators etc. The three buckets and rake elevators in use at the Hackney destructor (London England) capable of raising 10 to 12 tons per hour, are found to be very expensive to maintain and are liable to serious breakdowns. (8).

Hoppers or storage bins above the destructor furnaces are often found to be unsatisfactory, owing to the tendency of the refuse to bind and arch over the opening, and the bulky nature of the refuse often renders the hoppers inadequate in capacity, in which case some city authorities store the refuse in the carts or wagons and thus obviate creating of nuisance. In some cases the refuse in bins tends to ignite and cause an emission of noxious gases. In recently built destructors the hoppers are located behind or in front of the furnaces and are sufficiently large to hold one or more days supply. Such a position is both cool and handy for hand firing.

In the more recent developments of destructors the authorities have observed that it was possible to derive considerable steam power. The ordinary steam producing capacity of destructors is calculated at one pound of steam for each pound of refuse burned and as one horse power may be based on 30 pounds of steam per hour, it will be seen that one ton (2,000 pounds) will on the above basis produce 67 horse power, but a large quantity of steam is required for the plant itself, so that the net quantity of steam available for other purposes is less.

(7) J. T. Fetherston New York, Feb. 1914.

(8) Journal of Institution of Municipal and County Engineers, July 1914.

There are plenty of instances where the production of steam has exceeded one pound per pound of refuse.

Official tests made at the Clifton destructor in 1913 with a winter mixture of refuse gave a gross equivalent evaporation from and at 212 deg. Fahr. of 1.00 to 1.11 pounds at a pressure ranging from 117 to 126 lbs. per sq. inch, but at the West New Brighton destructor the results were 1.10 to 1.41 pounds of steam at a pressure of 130 to 137 lbs per sq. inch. The production of steam during the year 1911 was 1.23 pounds per pound of refuse. (7).

In Milwaukee the evaporation was 1.34 to 1.45 pounds and at Westmount P. Q. from 1.48 to 2.11 pounds (4). In Calgary, Alta., the average evaporation at tests was 1.13 pounds. In Darwen (England) the average evaporation during the year was 1.23 pounds, whilst on a test when burning unscreened refuse and slaughter house refuse was 1.55 pounds of steam from and at 212 deg. Fahr. In Huddersfield (England) with one part of sewage sludge and two parts of refuse 1.4 pounds of steam were obtained.

A test in Rochdale, (England) was made for the purpose of comparison by using ordinary coal slack having a calorific value of about 12,500 B.T.U., 7.33 pounds of steam were produced from and at 212 deg. Fahr., as compared with 1.97 pounds from refuse. At Montgomery (Ala.) in 1911 the following test results were secured 1.37 pounds of steam per pound of refuse; Carbon di-oxide in the waste gases 11 per cent; temperature in combustion chamber 190 deg. Fahr. The refuse consisted of 25 per cent. ashes, 42 per cent Garbage, 13 per cent. rubbish, and 20 per cent. manure. (2).

The steam produced by burning refuse is utilized for a variety of purposes, such as pumping sewage, or water, generating electricity, etc:

Part of the steam generated from refuse in London, Ont. is used for heating the Victoria Hospital which is situated fifty feet away. In one city 72 million foot pounds of energy is derived from every ton of refuse and used for pumping sewage. In Liverpool and Rotterdam, for example the electric energy generated is used for street railway operation. In West New Brighton and Clifton plants already referred to, a large quantity of steam is not utilized owing to the fact that the New York city charter prohibits its sale and consequently no revenue can be derived in this manner, this represents a loss of about $7,500 per annum. The quantity of refuse burned at each of these places is about 9,500 tons per year. In Westmount P. Q. the destructor is an auxiliary enterprise operated in the same building as the municipal electric lighting plant, the steam generated by the cremation of the refuse being used in the production of electrical energy. Messrs Hallock and Runyon, the engineers who were appointed to report on the disposal of refuse, by the City of Newark (4), stated that the total revenue in 1910 for electric lighting and destructor plants was $102,149.17, and the total cost of operation of the combined plant was $75,426.38, leaving a net profit of $26,722.79. The operating costs include all capital charges and depreciation. The cost to the Health Department for the refuse destroyed was $9,449.06 for the year. The population of Westmount is about 16,000.

Others examples could be cited but the paper is already longer than was anticipated.

One incidental result of good steam production is the production of good clinker, which can be used for many purposes. Low temperature cremation results in soft clinker which is not only useless but objectionable, as it cannot be used and it often contains partially consumed organic matter. Clinker should be well fused and virtrified and this can only be produced by maintaining a uniformly high temperature in the furnace.

Good clinker is used for making pavement slabs, for sewage filtering media, brickmaking, crushed into sand and mixed with lime for motar, etc.

Reference has already been made to steam production. In the earlier plants, the boilers were placed in the furnace directly over the fire, but it was found that the cooling effects of such boiler militated against the successful cremation of the refuse. The next step was to place the boiler between two cells and although better results were obtained, the makers in later installations have located the boilers beyond the combustion chamber. By this means the maximum temperature is secured and the gases adequately combus-

ted before coming into contact with any cooling surfaces. The figures quoted point to the possibility of developing considerable power by the high temperature cremation of refuse. If due attention is paid to the fundamental requisites of a destructor the cost of operating the same can be materially reduced by the sale or utilization of the steam and hard vitrified clinker produced.

In conclusion, the Author has observed that some disappointment has in places been experienced owing to the makers' claims being exaggerated and impossible of realization. It would of course, be folly to decry every new device, arrangement or design, until it has been put to a practical test, for that would be tantamount to placing an embargo on all legitimate developments, but experiments are costly and occasionally disturbing as was recently found to be the case in a large plant in North America, whose designers received due publicity in engineering journals. The achievements that were going to be accomplished fell short and the works are now being improved.

The evolution of the destructor has been slow and expensive and the results of experience in all parts of the world has greatly assisted the maker in deciding upon the arrangements, capacity and construction best suited for the refuse produced in different places in different climes.

New York, Westmount or other destructors in the East may not be quite suitable for Western refuse, and doubtless this is the case. Each city has its own problem to solve and it, therefore, behoves that the Authority contemplating the installation of a destructor or incinerator should take the fullest possible advantage of the experience of others under similar conditions and of the plant best suited to satisfy its own specific needs.

"THE MARK OF THE BEAST"

THE MARK.

"Unclean!" moans the world. "'Tis a leprous Thing,
Crimsoned with rapine, and armed with a sting."

Read Ye the Rule of the Beast?
How he preys on his myriads from greatest to least?
Poor slaves, on their knees 'mum a shuddering strain,
While in darkness, dire dread gnaws their vitals in vain.

Naked he stands, nor clothed in his shame
But he wears as a mask, a blasphemous name.

Know Ye the War of the Beast?
The nations, undreaming, at rest in their "Peace,"
In terror, "To Arms'" are hurried from sleep,—
But already to Heaven, the lurid flames leap.

Your cities shall burn, and your hearts shall break,
Ere the noisome Beast his last toll take.

Behold Ye the Mark of the Beast!
Unclean, he sates him his smoking feast,—
His minions, unclean, bring him blood of the slain,—
His meat, little children, yet writhing in pain.

Your daughters defiled, and your altars a tomb,
E'en the lair of the Beast is shadowed in gloom.

Be think Ye the Fate of the Beast!
Till Eternity's dawn shall his seed be accurst'
For the sweep of the years shall leave not a mark
That will shadow the least fell trace of his work.

For those who were martyred, the waters of Lethe,
But a deadlier draught for the armies of Death.

THE CURSE

"With the blood of My World, hast thou watered thy path,—
Drink, now, till the End, of the Blood of My Wrath.

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SUPERVISION OF COMMUNICABLE DISEASES IN THE SMALLER COMMUNITIES

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Exec. Sec. Minn. Public Health Assoc.

THE public health work of to-day is very different in character from that of twenty or even ten years ago in both big places and in small.

Then our conception of a public health department, especially in the smaller places, was a medical man who would casually put up and casually take down placards when infectious disease were more or less accidentally reported to him; and one or more worn-out old men who helped the health officer in this onerous task, burned a little sulphur or boiled a little formaldehyde in the room where the patient was supposed to have been confined, occasionally rebuked some householder for an untidy backyard, a garbage heap, or cess-pool—and in general wandered about the community in a more or less desultory way, urging people of the less wealthy residential districts to clean up. Most citizens looked upon the health department as a harmless necessary evil, to be "Cieced on" to neighbors at times when the neighbors made any unusual contribution to the general odors of the vicinity, and to be resented by themselves with conscious dignity and hurt pride whenever the inspector turned his thoughts their way. "My well is the best well in the township; but my neighbor's well—I don't see how those people drink it—my backyard is all right—but it's a wonder my neighbor's backyard does not breed a pestilence."

Everyone shuffled along very comfortably, was born, had all the regulation three and one-half children infectious diseases per head before he was twenty-one, passed on to maturity, contracted such adult diseases as were open to him to contract, grew old, and died with a pleasant if hazy impression that his community was the healthiest in the State, that he was entitled to pity people who had to live under a less-well regulated public health regime, and that, all things considered the health department did very well in view of the fact that they really had not much to do any way in such a healthy community.

That the operations of such health departments accomplished nothing in the prevention of disease and death, that they made many unnecessary ordinances, imposed many wholly needless burdens, and caused many wholly useless clean-ups, that they were helpless in the presence of an epidemic and absolutely futile to stem even the usual current of disease never seems to have entered anybody's head.

But we have reached an age where we do not take for granted that a thing is good simply because it is long established. We require everybody and everything to show some reason for existence, some result obtained for time and money expended, we want to know—and we want to be shown.

This investigative turn of the public mind into established procedures revealed some curious things concerning the old style health department: such as that despite the alleged health department activities, disease was just as prevalent in communities with such health departments as in those without; that in brief, whatever functions a health department exercised they were not functions which had any marked effect in disease and death.

The present conception of a modern health department is a body of highly trained people, who really know all about the diseases they exist to prevent; who really know how to prevent them; and who really have the necessary facilities to really accomplish prevention.

We no longer believe in a promiscuous way the old-wives fables that specific diseases of definite and now well known origin can develop from bad smells or decomposing vegetable or animal matter. We do not attribute every disease to sewer gas or swampy land. We recognize that

of all the diseases man is heir to, the ones which we can prevent are all contracted by more or less direct contact with previous cases; and the modern health department is intent on knowing and supervising every case until it can no longer spread the disease.

About all we have at last recognized the apparently only too obvious fact, nevertheless long overlooked, that it is not the severe case of diphtheria or scarlet fever, tuberculosis or smallpox that chiefly spreads infection, for the severe case is sick in bed as a rule and comes in contact almost solely with the doctor and the nurse. It is, we see now clearly, the mild, the unrecognized and too often the deliberately concealed case, the case not sick enough to go to bed, not sick enough even to call a doctor, that runs about the community at large and disseminates infection to all corners.

The modern health department which contents itself with placarding several cases during the height of the disease is a futile and practically useless municipal department, unjust in that it penalizes the honest citizen who allows his doctor to report the case, while his neighbors' children with the same disease escape; futile, because for the one case thus isolated, a dozen are often running free and uncontrolled.

The supervision of infectious diseases is to-day a scientific strenuous occupation in which the conscientious and well-posted health officer finds use for all his medical training, a large share of detective ability, infinite patience and tact, and above all a firm jaw and a stiff backbone.

One such man to every 20,000 of the population would have a marvellous effect in a very short time in Minnesota, for he would really do what most local health departments now only go through the form of doing—he would trace infection mild, unrecognized and concealed through its many ramifications, and he would really prevent further spread instead of accomplishing almost nothing.

The small municipality cannot afford such a man; even the large ones in Minnesota still have only part time health officers with department, underpaid, undermanned, unprovided with proper facilities.

Every municipality of twenty thousand inhabitants or more should have one whole time health officer devoting himself not to municipal housekeeping, cleaning streets or collecting garbage, but to the prevention of disease and death. Of course, garbage collection, street cleaning, etc., are important municipal enterprises, but they are matters calling for administrative business ability, not the technical training of a medical man in the origin and methods of spread of contagion. Through what form of imbecility were our forefathers led to believe that the ability to distinguish typhoid fever from typhus fever, training in the use of the microscope or knowledge of the period during which scarlet fever is infectious were prerequisites to organizing a gang of scavengers, to make reasonably good time from the householder's garbage can to the city dump? Nuisances also must be regulated and abated; but these are pure police duties. An intimate knowledge of human anatomy, physiology and pathology is not a prerequisite to finding out whether or not the smell from a rendering plant causes complaint amongst the neighbors. Poorest of economies is it to use teaspoons for driving nails. Why train a man at great expense over long years to do one thing well and then set him to do badly something he has never learned? The whole time health officer should, therefore, have no such occupations to distract him. Communities of less than 20,000 may be united to provide amongst themselves a similar official.

This conception of health department work is growing everywhere, but the tendency is to hand this work over to the State, because of the difficulties the smaller communities would have in getting together satisfactorily on a choice. In New York, Maryland, Wisconsin in this country, in Ontario and Quebec across the line the State Government has a number of such experts, each with his own district to look out for; not replacing the local health officer, but helping him, doing the things he now leaves undone, following up mild, unrecognized and concealed cases as he cannot or will not do.

This we hope to see in Minnesota. We are asking for such men in our 84 coun-

ties outside Ramsey and Hennepin. The Federal Government expert who recently investigated Minnesota health work has strongly recommended this plan in his official report, and we hope to find you gentlemen convinced and strong supporters of it.

Please remember that the whole meat of health department is in doing it; and no amount of regulation, advice or wisdom recorded in your ordinance amounts to preventing a single case of chickenpox unless it is done, not merely talked about or written.

THE GARDEN

Gardening helps body, mind and spirit. It gives exercise in air and quiet; it stimulates thought, calls out resources and quickens curiosity; it induces tender ways and gentle patience and it forces the acknowledgment of dependence on a power greater than our own, and beyond our control . . .He who makes a flower grow gets some good for himself, and he also gives good to every passer-by who sees its beauty. The gardener is blessed and blesses. Why is not everyone for some portion of his time, a gardener?

Rev. Canon A. Barnett.

WOMEN OF FRANCE

By FLORENCE WITHROW

OUR last article dealt only with French Queens. Mention must be made also of certain other characters, the kings' mistresses, since their influence was paramount and dominated the monarchs' thought and action sometimes throughout many years. It is not our purpose to comment upon the custom nor the license of the times, but we shall find that the same inexorable decree of life was the same then as now, and that the way of the transgressor proved hard.

Agnes Sorel (1409-1450) is perhaps the first who took a recognized place in Court life. She even received the warm friendship of the virtuous Queen Marie d' Anjou, wife of Charles VII., and is credited with having restored courage and hope to the despairing king after the English victories of Henry V. had almost paralyzed France. Unworthy is it that Charles gave no credit to his real helper and inspirer, Joan of Arc, of whom an account will be given later. Agnes' death was sudden and painful, and the Dauphin, afterwards the craven Louis XI., was strongly suspected of having poisoned her.

Comtesse de Chateaubriant (1485-1537) was in the zenith of her beauty when Francis I ascended the throne and her influence over him lasted many years. She was instrumental in his release after defeat at Pavia, and went in person to minister to him. Her jealous husband is said to have bled her to death in the old castle of Chateaubriant.

Duchess d' Etampes (1508-1576) became a later favorite of Francis I. Jealousy sprang up between her and Diane de Poitiers, the mistress of the Dauphin, which ultimately led to her betraying to the Emperor Chas V. the movements of the French army and the direful treaty against France was due to this intrigue. She was present at the interview between Francis I. and Chas V., and the latter fell under her spell, but nevertheless did not lessen his harsh terms with France.

Diane de Poitiers (1499-1566) was attached to the court of Queen Claude, and was a dangerous companion of Anne Boleyn. On the accession of Henry II. she banished the former king's mistress, and even prevailed over the arrogant Queen Catherine de Medici. Although 20 years older than Henry, she retained her power over the king, even when she was 60, for her beauty was preserved, her intellect keen and her mind resourceful. Even the cunning and contriving Catharine valued the services of her rival and approved of her admission to the King's councils, and when difficulty arose over the growing power of the Constable de Montmorency, the Queen sent hastily for Diane de Poitiers to detach him from office. This remarkable woman was less extravagant than the average royal favorite and seemed to value her position largely for its political influence and for the benefactions to charity which it enabled her to bestow.

'Gabrielle d' Estrees (1571-1599), of noble birth, was noted for the number and rank of her lovers. She entirely lacked the intellectual qualities of Diane de Poitiers and traded wholly on her beauty, which probably surpassed that of any King's mistress. Her extravagance was enormous, and Henry IV. granted her every whim. She influenced him in his sumptuous building of various Chateaux in Tourraine and in Fontainbleu, in which still are seen beautiful rooms furnished for her and where are many marble sculptures of her face and form. Henry IV., lavished on her many estates and wished to divorce Margaret de Valois, in order to raise this voluptuous beauty to the throne, but the Prime Minister Sully outwitted the Sovereign's base purpose, and the sudden death of Gabrielle was not without suspicion of poison. One of their sons was the dissolute Duc de Vendome, who frequently conspired against his half brother Louis XIII., and who is charged

with an attempt to poison Richelieu, as battered an old beau as himself.

Louise de la Fayette (1616-1665) was maid of honor to Louis XIII.'s queen, Anne of Austria, and was highly esteemed by her. Cardinal Richelieu, as a contemptible intriguer, played an abominable part in trying to pit another young girl, the haughty and jealous Marie de Hautefort, against the innocent Louise. The latter was a pure and good maiden, who absolutely refused the King's addresses. She chafed under the temptations of court life and determined to become a nun, in which vocation as abbess she lived for over thirty years. So great was the Sovereign's respect for her that she remained his confidante and counsellor, and maintained a lofty and inspiring correspondence with him throughout his life. Be it said to Louis XIII.'s credit, that woman's influence played but small part in his career, owing largely to the benign influence of the gentle nun.

Louise de alliere (1644-1710) accompanied Henrietta Maria to England when she became the Queen of Chas. I. Louis XIV. sent for her, and as her love for him was really sincere she rejected many suitors, Racine among the number. She was the youngest mistress of any French king, and having conscientious scruples twice sought refuge in a convent, where she finally retired. Her beauty captivated Le Brun, Court painter, who painted her as his celebrated Magdalen. She was the subject also of numerous poems and romances, among them novels by Bossuet and Mme. de Genlis.

Marquise de Montespan (1641-1707), a maid of honor to Marie Therese, Louis XIV.'s queen, possessed beauty, hauteur and brilliant conversational gifts, and her power over the Grand Monarque lasted 23 years. Being a patroness of Letters, to her salons came Corneille, Racine, La Fontaine, Mme. de Sevigne, also the most celebrated scientists of her day. Strange as it may seem, she was a believer in alchemy and witchcraft, and from the sorceress La Voisin procured so-called love potions or deadly nectars, and of more than one poisoning was she suspected.

To the king she bore seven children, whose education was entrusted to Mme. Scarron, afterwards Mme. de Maintenon. Like most other mistresses her power waned and she was succeeded by a new attachment, Angelique de Fontanges, who shortly afterwards died. Suspicion was thrown upon the former favorite, but Mme. de Maintenon helped to hush up the scandal, and the Montespan was generously pensioned in a convent. Probably of all royal mistresses this Marquise was the most intellectual and accomplished, although not the most beautiful nor of most political influence, moreover she was the highest in aristocratic birth.

Mme. de Maintenon (1635-1719) was the daughter of a noted Huguenot, but her mother was a feverent Catholic. On release from prison the father took his family to Martinique, where he died. Returning to France the mother and daughter lived in straightened circumstances until the penniless girl was married to Scarron, the famous wit and writer. He was deformed and an invalid, but for nine years his wife faithfuly nursed him. On his death the grave young widow was engaged by Mme. de Montespan as governess, and when the latter was dismissed the former remained as court lady, being given the title marchioness and the estate of Maintenon. In her arms the queen died, and shortly after she was secretly married to Louis XIV by Pere la Chaise, the king's confessor. For thirty years she maintained her position, although never as queen. Her attitude was always for decency and restraint, and she abhorred the extravagant follies of Versailles.

She ruled Louis with prudence and moderation, and although never appearing to meddle in affairs of state nothing was done without her knowledge and consent. It was her decision which caused the revocation of the edict of Nantes, whereby Protestants were again persecuted. Having been a born teacher, her interests were educational so, with the king's endowment she founded the splendid institution of St. Cyr, where she passed her declining years, refusing to see all great personages save Peter the Great. For her petites filles Racine wrote his Esther and Athalie, and she herself composed high minded asays on conduct. Hers was a life of both precept and practice, the more remarkable since it was spent at the court of one of the most pomp-

ous and worldly of monarchs. To her honor must it be said that she was quite a different type to the fondled mistress, for she had always been a decorous and sagacious woman.

Duchess de Chateauroux (1718-1744), called La Tournelle, accompanied Louis XV. to Lille, Ypres, Dunkirk and Metz during the war with the Pays Bas. They rumbled along the roads in a cumbersome carriage, with enough impedimenta for an army, as her clothes were both voluminous and numerous and her various headdresses of colossal build. She was probably the most extravagant favorite a king ever had, and on her chateau at Choisy was squandered 3,000,000 francs. The Bishop of Paris and the minister Maurepas were both banished on her demand because they rebuked her recklessness.

Mme. de Pompadour (1721-1764), the natural daughter of a wealthy financier, was deliberately educated for a royal mistress. She met Louis XV. at a state ball and immediately repudiating her young husband, was soon installed at Versailles as "maitresse en titre." Louis bought for her the estate of Pompadour, and in lavish gifts far outdid any other French king.

The mistress soon asserted herself in court circles, and mixed ambitiously in politics, bringing into prominent office whom she willed. She even held reins on the army and dispatched regular letters to the generals in the field, and in the Church made and unmade abbes and cures.

The policy of France since Richelieu's time had been to weaken the House of Austria by alliances with Germany, but as Frederick the Great wrote scurrilous verses against the Pompadour, and as Maria Theresa wrote her a friendly letter her attitude deliberately changed and she united French policy with Austrain. This precipitated the Seven Years' war and led to the loss of Canada.

This bold woman was truly the power behind the throne and controlled not only France's foreign policy but in internal affairs exhibited extraordinary vigilance, examining each day's letters, preparing the king's business and directing his mandates. She established the questionable theatre des petits cabinets where she herself acted in disgraceful fashion. Classic roles were her favorite in which she dared bold nudity. Shortly before her death she ingratiated herself into the graces of the queen and was appointed a lady in waiting, but only for a few months. When death stared her in the face she hastily donned full court dress and with painted cheeks, but livid hands awaited the grim spectre.

Mme. du Barry 1746-1793, a French adventuress, the illegitimate child of a poor woman, had but scant education, and at sixteen entered a milliner's shop in the Rue St. Honore. Discovering her voluptuous charm Jean du Barry, later her brother-in-law, brought her to his gambling house to attract his "dupes," then for monetary consideration he succeeded in placing her as official mistress of Louis XV., which position she held until the king's death from smallpox. She effected the dismissal of the Duc de Choiseul, Minister of War, and caused other courtiers to be disgraced because they treated her with contempt on account of her vulgarity. Louis built for her the gorgeous chateau of Luciennes where she was visited for state reasons by Benjamin Franklin and Emperor Joseph II. To raise money on her jewels, some of which belonged to the state and which she stole, she went to London and there paraded in deep mourning for the late king, but on the day of her return she was condemned to death by the Revolutionary Tribunal and beheaded the same evening.

We have now finished the more or less sordid tale of King's Mistresses, and find that with few exceptions the inevitable result was declining years of neglect and sadness. Let just this much be said that the greatest blot on the escutcheon of fair France was the degradation of her morals. Vice lauded itself as virtue and the more shameful the more it paraded its foulness. So low were the orgies in the royal palaces that even servants were excluded and dumb waiters served the licentious guests. Visitors to the Trianon and other royal chateaux have seen where these were concealed because the diners appeared in shocking nudity.

Let us now deal briefly with a series of events connected with the feverish days of the Revolution when blood ran high and the tense nerves of women led them to rash and murderous, but sometimes

heroic deeds, for it was woman's desperate initiative which brought on many crises. It was a young woman who incited the mob to march to Versailles that rainy morning, Oct. 5, 1798. She rushed into a squad of soldiers, snatched a drum, and beating it cried, "bread, bread." After the riotous march of twelve miles Louise Chably a sixteen-year-old flower girl of the Palais Royal was chosen to represent the women before the king. She was led into a gorgeous chamber and there threw herself at Louis XVI's feet, and amid her tears telling of the miseries of the poor, demanded that they be fed. On returning the women were not satisfied with her report and threatened to strangle her. Instead she was conducted back to the king with the demand that he appear on the balcony and put in writing his promise to supply Paris with food. The poorly clad girl was kissed by the monarch before the assembled crowd, then sent back to Paris in a royal coach, and after delivering the letter to Mayor Bailly, was escorted to her humble home by a military guard.

In the Hall of the Assembly at Versailles after the mobs' disorder had ceased, women interrupted the session and a fish wife, mounting the dais, bawled out, "give us bread not babble." Later they ran along side the king's carriage on his doleful return to Paris, peered in at the window, taunted and jeered, saying: "We have the baker now bread will come." Loaves were carried on pikes and for six awful hours bedlam marched with a king and queen.

On the memorable morning of Feb. 4, 1790, when Louis left the Hall of the Assembly in Paris, where he solemnly pledged himself to the new constitution, all was exultation save for one jarring note from a sinister old hag who shrilly screeched, "You will change your mind as usual. A Bourbon cannot be a constitutional monarch." Alas her prophecy very shortly came true when Louis tried to escape to place himself at the head of armed royalism.

As the Revolution progressed the question of revenue became a grave matter. Necker, the great finance minister, and Turgot, the economist, did all they could, but for a time the Government lived on voluntary donations. Three weeks after the fall of the Bastille (July 14, 1789), a deputation of ladies, after the manner of Roman matrons, went to the Assembly, as the old States-General was now called, with gifts of jewels. This worthy example was quickly emulated and Members straightway tore off their gold and silver shoe buckles and the king contributed royal plate. Besides many other astonishing gifts poured into the treasury. Unfortunately the good impulse was taken advantage of by unscrupulous persons, mostly women, who under pretext of collecting for the government gathered to themselves considerable treasure.

On another extraordinary occasion women played a conspicuous part. A spectacular sight was it in the Champs de Mars when 15,000 citizens, high and low, gathered together to dig and terrace the immense parade ground in order to make an amphitheatre for the great Festival of the Federation, the purpose of which was to celebrate the new Constitution and to commemorate the triumph of the Revolution in the fall of the Bastille one year before, and in the ending of the old regime. Ladies of the noblesse and women of the bourgeoisie worked side by side, comtesses with grisettes handled rake and hoe and the king himself spaded the ground. One inspiring sentiment equalized all for it was the first day of the nation's new motto "Liberte, Egalite, Fraternite." All classes from the king to the raggedest garcon swore to the oath of the new Constitution on the nation's new birthday, July 14, 1790. Alas the joyous auguries of that day were destined to non-fulfillment for several years for a bloody reign of terror ensued.

Strange importance is attached to another date, Feb. 1, 1791, when one of Paris' greatest riots occurred. The direct cause was the action of two maiden ladies Mesdames Adelaide and Victoire, aunts of Louis XVI. The heyday of their life was long since passed for they were approaching the seventies. The Revolution had created a world new and strange to them, uncloaking clergy to whom they were wont to confess and replacing them with priests of unsound orthodoxy. For this reason the ancient dames sought to leave France forever. To accomplish this secrecy must be observed and passports procured, but the latter were refused and the king was com-

manded to forbid the departure. On resisting this demand and in furthering the escape of the faded and pious princesses Louis brought anathema upon himself. Immediately the country was aflame with protest and suspicions became rife that the king also was planning escape, which he actually attempted, June 22, when intercepted at Varennes.

Agitators mustered a mob of fishwives who marched to the suburb where the retired dames lived and by the next day a riot of 40,000 disordered the streets of Paris and whirled around the Tuileries. Had it not been for the prompt action of La Fayette, commander in chief of the army, who quelled the wild rush on the palace, France's carnival of carnage, would have begun a year sooner than it did.

The real storming of the Tuileries occurred Aug. 10, 1792, and again was a young girl the "fury" who led in the onslaught. Theroigne de Mericourt was her name, and she appeared mysteriously in the palace court yard clad in black with a huge black plumed hat. Nimbly mounting a cannon she harangued the tattered ruffians there assembled. Then fleetly rushing ahead and crying "make way" she lead the insurgents straight into the gilded halls. The king quickly surrendered, but stupidly gave no intimation to his faithful Swiss bodyguard, who still fought to protect his person. The young fury's followers attacked the Guards until not a Swiss save one was left alive. Slashed and slain, bleeding and bruised they were done to death by the infuriated mob. Guizot claims that so hideous a revel had not been since Bartholomew's day, 1572. Every tourist to Lucerne is touched by Thorwaldsen's masterly lion transfixed by a spear, but with his noble paw upon the shield and lily of France, a fitting tribute to the Swiss mercenaries who gave their lives for France's King and Queen.

During these tragic days it is well to know the Queen had some faithful friends and none more so than the Princess de Lamballe (1749-1792). In the interest of the royal family she went to England and was graciously received by the Prime Minister Pitt. In her apartments in the Tuileries the Austrian Committee met and conspired against the Republic, which later treated her so ruthlessly, and rushed her before the Tribunal, telling her to swear to love the nation and to hate the rulers. "The first oath, but not the last. Death, but not dishonor," was her brave reply. For this she was dragged out and rudely stabbed. More cruel still was the treatment given her mutilated body, for the head and dripping heart were fixed on pikes and hurried to the Temple where the Queen was incarcerated. Had it not been for the fatal affect of this ghastly sight upon Mme. Tisson, an attendant, who dropped dead, the Queen would probably have been forced to view the livid face of her friend. As it was the news of the hideous head outside her window caused her to faint.

Comtesse de Polignac was the bosom friend of Marie Antoinette during the gay court days at Versailles, but when adversity came she deserted. Her husband was created Duke by the king, and made postmaster general. Both fawned on the royal pair and lived extravagantly on state bounty, however when evil days befell they were among the first to emigrate. Their son became a Minister under Charles X, the restored Bourbon, but this appointment incensed the people who took it as the king's intention to overthrow the Constitution and thus was precipitated the Revolution of 1830.

Mme. Campan (1752-1822), was also a true friend of the unfortunate queen. When only 15 years old she was appointed reader to the daughters of Louis XV., and on account of her cultivated mind was selected as the first lady to Marie Antoinette. She was by far the most intellectual woman at Court, and her diary gives minutest details of the last days at Versailles and the uncertain months of fear in the Tuileries at the sacking of which she was forcibly separated from the queen. Having escaped the Terror and finding herself penniless Mme. Campan established a school which was attended by Hortense de Beauharnais. Napoleon, attracted by her spendid educational system, which included domestic science, later appointed her the head of his academy for the daughters of the Legion of Honor.

A pathetic incident in which women figured occurred when the Convention brought Louis XVI to trial. The aged

Malesherbes, the celebrated jurist, undertook the defence, but the king desired also the services of the illustrious Turgot, who indifferently pleaded old age. His cowardice so incensed the women that they mobbed his house and hung nettles over the door, while upon the gate of Malesherbes they strung garlands of flowers. In spite of this venerable avocat's pleading, a majority of fifty-three voted Death—and that her brother was shrewd and far-seeing, within twenty-four hours.

On Louis' death journey to the guillotine, woman's influence was once more sought, but the vigilance of the authorities prevented the carrying out of the plan, which was that royalist ladies disguised as market women should call "pardon" as a last hope for release. However precaution was taken to exclude all "dames du marche" from among the seething mass which thronged the route.

As there is yet so much of interest connected with woman during Revolutionary and Napoleonic times, we shall continue next month with the scandal of the diamond necklace, Charlotte Corday, Mme. Roland, Recamier, etc., also with brief sketches of literary and dramatic women.

Inadvertently the account of an important queen was omitted in our former article so we append it here.

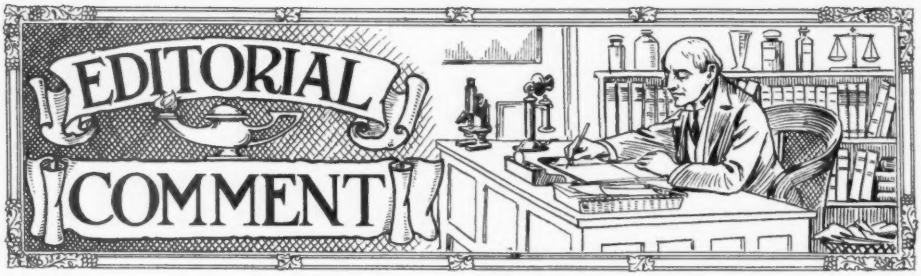
Anne of France, Dame de Beaujeau, (1460-1522), daughter of Louis XI, acquired the regency through the charge entrusted to her of her young brother, Charles VIII. She inherited her father's avarice, obstinacy, cunning, and superstition, but also his astute mind, and in the tutelage of Her jealousy of her brother-in-law, the Duke of Orleans, afterwards Louis XII, who disputed the Regency with her, knew no bounds, but she succeeded in defeating him in battle and in casting him into prison at Bourges, where he was confined each night in an iron cage. Also to prevent his accession she furthered the alliance of Charles VIII. with the princess of Brittany.

The Bourbonais, the last great fief of the crown, a province in central France, was acquired by her husband, and after his death the redoubtable Anne tenaciously held the vast domain and vigorously defended the Bourbon cause against the House of Orleans, augmenting it also by marrying her daughter Suzanne to the Constable de Bourbon.

THE GARDEN

The man who has planted a garden feels that he has done something good for the world. He belongs to the producers. It is a pleasure to eat of the fruit of one's own toil, if it be nothing more than a head of lettuce or an ear of corn. To dig in a mellow soil—to dig moderately for all pleasure should be taken sparingly—is a great thing. One gets strength out of the ground as often as one really touches it with a hoe. It is not simply beets and potatoes and corn and string beans that one raises in his well hoed garden: It is the average of human life. There is life in the ground; it goes into the seeds; and it also, when it is stirred up goes into the man who stirs it. The hot sun on his back as he bends to his shovel and hoe or contemplatively rakes the warm and fragrant loam is better than much medicine.

Warner.



The Need of Periodical Medical Examinations.

We call your attention to an article by Dr. S. S. Goldwater, Commissioner of Health, New York City, because it fits in so nicely with our Symposium on Cancer, which appears this month in the section of the Academy of Medicine.

"Of all sad words of tongue or pen,
The saddest are these, it might have been."

Thousands every year have good reason to recall these lines when the physician or surgeon pronounces his opinion in words something like these. "Your life might have been saved if you had come to me in time."

The average length of life has risen from approximately twenty years, in the sixteenth century, to approximately forty years, at the present time. An additional gain of from two to five years can be made if our knowledge of disease and of the premonitory signs of disease is universally applied in an intelligent way. If this is true, the duty of the departments of health, which are the official guardians of the lives and health of the people of the cities is clear; the department must assume the leadership in this great movement for the preservation of health and the prolongation of life.

Certain diseases are communicated from individual to individual. To the protection of the community from these diseases, and the prevention in this way of disastrous epidemics, health departments have hitherto largely confined their efforts. Surveying the present situation one perceives that from this point of departure some progress —though far from enough—has been made. The inspection of school children was originally undertaken for the purpose of discovering and isolating contagious diseases; to-day an effort is made to discover and correct physical defects before it becomes impossible to restore the afflicted one to health.

Furthermore, a field has been found for useful medical work and legislation, in connection with occupations where conditions exist which are inimical to life, limb and health. To the promotion of the child hygiene it is not proposedto add the teaching and enforcement of adult hygiene. Instead of the control of a few distinctive occupational diseases it is intended to control all disease which is controllable.

When tuberculosis was first made notifiable by law, it was assumed that the key to the tuberculosis situation had been discovered. All cases were to be reported, and sooner or later, in one way or another, all reported cases were to be cared for. The registration of cases of tuberculosis has now been in vogue for a number of years; thousands of cases have been segregated, in many cases the disease has been arrested, the life of the average tuberculosis individual has been greatly prolonged, and the mortality from this disease has been further diminished.

But despite all this, tuberculosis is not to-day under full medical control for obvious reasons. A doctor cannot report a case of tuberculosis until he finds it, and in spite of all the teaching and preaching of the past decade, many patients do not seek medical advice until it is too late.

Ask any physician, examine the records of any tuberculosis clinic, and you will discover that most victims of tuberculosis recognize their need for treatment far too late; in the meantime these tuberculosis individuals take no precautions whatever for the protection of their families or fellow-workers. It is plain that the spread of tuberculosis can never be checked until a way has been found to discover every case of pulmonary tuberculosis in its incipient stage.

The cancer death rate steadily increases; we rejoice at the organization of a society whose aim is to teach the public how to recognize the early symptoms of the disease and to make everybody understand the surgical relief which should be instantly sought, once the symptoms are recognized. The need for this teaching, arises from the fact, that the cancer victim too often seeks surgical relief when it is too late to prevent the disease from becoming fatal.

No one can doubt, that the Society for the Control of Cancer will accomplish much good; but in a larger sense, its failure is inevitable, because working people who have character and strength of will, and who are struggling to support their families, will make light of premonitory symptoms and will avoid the doctor and the hospital until forced by sheer physical exhaustion to quit work.

Attention has been called repeatedly to the increasing mortality from disease of the heart, blood-vessels and kidneys. The death rate from diseases of the heart and kidneys has approximately doubled during the past thirty years. These diseases, together with cancer and tuberculosis, are the despair of hygienists.

If we do not know how to prevent them, we know at least how to recognize them in their earlier stages, long before their victims are incapacitated, and in a large percentage of cases we can postpone their serious development, promote the comfort of the individual and prolong his working life.

While the State of New York has already undertaken the supervision of certain dangerous trades, with a view to the prevention of occupational diseases, it is recogn-

ized that many occupational or vocational diseases now escape attention, and hospitals are being urged to look more carefully into the occupational histories of their patients, in order that our knowledge of this subject may be enhanced.

By this means the range of recognized occupational diseases will doubtless be widely increased, and the field for the legislative and administrative control of injurious vocations will be correspondingly widened.

Unfortunately, the discovery, by means of the analysis of hospital statistics of occupational tendencies which are injurious to health has its limits. The patient who enters the hospital for treatment is, as a rule, already damaged beyond repair; dispensary patients, as a class, are less seriously injured, but even these do not and cannot receive, under our present methods, the full measure of protection which medical science affords.

Preventive methods should deal with the individual who has not yet been driven to the dispensary or hospital for treatment.

To what extent are industrial workers physically impaired? A striking and pathetic answer to this question is to be found in the records of the Joint Board of Sanitary Control of New York City. Under the direction of this board eight hundred garment trade workers were examined—sixty-two per cent. of those examined were found to be in need of medical treatment. In a similar investigation in Germany fifteen diseases or conditions of physical impairment were found among every ten workers examined.

In a recent examination of the employees of a New York City bank one hundred per cent. of the employees were found to be abnormal, and liable to suffer from diseases of the heart, lungs, kidneys or blood-vessels.

In the light of such evidence as this, can it be maintained that preventive medicine is properly organized "to curtail and if possible, to prevent disease, to prolong existence, and to render life happier by means of improved physical conditions?"

To prevent or control disease three measures are necessary, education, which is essential to an understanding of the dangers which the individual encounters; regulation, to prevent environmental conditions which are inimical to health; periodic medical examination, a necessary test of the value and effectiveness of education and of sanitary regulation.

Preventive medicine cannot do its utmost good until physicians are regularly employed by the entire population, not merely for the treatment of acute and advanced disease, but as medical advisers in health. Only by means of this can we insure the automatic discovery of the beginnings of disease, and especially, the beginnings of such diseases as cancer, heart disease, hardening of the arteries, degeneration of the kidneys, and tuberculosis, which contribute so largely to present mortality, and which, if not always avoidable, are in a large majority of instances, defeatable. To this end the departments of health in our cities are bound to direct their energies, not as the competitors of the private physician, but as his ally, and as the friend, adviser and protector of the people at large.

For the contribution which the physician will thus make to human life and human comfort he should be properly educated. The attention of the medical student should be directed to the beginning of disease as carefully and as persistently as it is now directed to those diagnostic signs and symptoms which are indicative of incurable pathological processes, and of acute self-limited diseases.

To sum up then, it is proposed that a complete physical examination, by a qualified and duly licensed physician should be provided every individual in New York City at least once a year. Whoever has the means should see to his own protection. The state and city already charged themselves with the examination and protection of children in public schools; in future similar protection must be given to everybody.

For the purposes of medical examination it would be wise to organize workers in groups corresponding to their employment, since in this way diseases due to occupation would be automatically disclosed. The government, national, state or municipal, should see to the protection of its own employees, just as many private corporations and firms have already provided for the protection of theirs.

Fruits and Vegetables as Foods.

To persons living in tropical and sub-tropical climates the value of fruits and vegetables as foods is a matter of such ordinary observation that the question which we are discussing scarcely ever arises; and yet it is nevertheless probable that owing to a lack of the nitrogenous element in the food of the working people of some Southern climates a lack of labor efficiency may result. In temperate climates on the other hand it is probable that the error exists in more nitrogenous foods being used, certainly by the town dwellers of sedentary habits than either the energy required or the maintenance of the tissues in a high state of functioning in keeping with the highest conditions of health demands. The changes, however, which have taken place both in America and in Great Britain with regard to the uses of fruits as a dietary have been very great and remarkable during the past thirty years. In the days of early settlement in America the food of the settlers consisted almost wholly of animal food on one hand and grains on the other. The vegetable garden was hardly known while fruits were too often looked upon as simply for use in their season and as a luxury rather than a food. To-day however, owing both to the scientific processes of preserving food having been developed and to the enormous growth of cities, the general diffusion of knowledge relating to the hygiene of diet and the use of fruit has been very greatly developed. Formerly in the Northern States and Provinces the drying of fruits and the preparation of jams were developed into a high art and the

use of the fruits in this manner was more general than during the last twenty years. These methods have, however, in a large degree been superseded first by the art of canning fruits and vegetables and later by the preservation of fruit through refrigeration or cold storage. In all such cases, however, the use of fruits has been looked upon primarily as a sauce or condiment and secondly as an anti-scorbutic or a necessary part of food in relation to health. But seldom indeed has the value of fruits from the standpoint of a supply of energy in heat units been thought of. This of course is true so far as the use of ordinary fresh fruit goes with its 85 per cent. of water and similarly is it true of canned fruits which have often quite as high an amount of water; yet the sum total of the amount of nutrition from a crop of bananas or of pineapples or the ordinary apples of the North is very large indeed, and may approximately, if not wholly equal the amount of food obtained from the wheat grown per acre. The chief difficulty of course is in the preservation of the fruit and in the reduction of the amount of water present in it. The following table shows the contents of wheat flour and dried apples and the number of calories of heat units per pound present in different classes of foods:

ENERGY VALUE OF VARIOUS FOODS.

Kinds of Food.	Value in Heat Units.
Sirloin Steak per pound	1210
Eggs per pound	720
Milk per pound	325
Butter per pound	3615
Wheat Flour per pound	1645
Oat Meal per pound	1845
Sugar per pound	1820
Potatoes per pound	375
Apples per pound	320

In the drying of fruits care must be taken first that they be not dried at too high a temperature so that any great loss of flavors is prevented and second that such a percentage of water is removed that if packed with ordinary care the fruit will remain in good condition in any ordinary climate. In Germany and France where the most scientific exactness has been exhibited in the conservation of foods and vegetables it is found that varying possibly with the tissues of different substances the percentage of water remaining after evaporation of the fruit must not exceed twenty per cent though it often is reduced to fifteen and seventeen. That the solids of fruits are sugars rather than starches as found in wheat, corn etc., may further have some effect upon the keeping qualities of fruits as compared with grains, since while ordinary flour of wheat or corn averages fifteen per cent. of moisture, it is well known that the flour will readily become musty if kept in a damp place.

The following illustration of the value of foods as applied to an orchard of apples might well be duplicated with regard to bananas and fully illustrates the importance of the subject we are discussing. An ordinary orchard in the North will have at least forty trees to the acre and each in bearing will have an average of two barrels per tree and often reaches four or five. Assuming that there is an average of three barrels per tree we would have with forty trees to the acre 120 barrels of 150 pounds of fruit or 18,000 pounds of fruit or 360 bushels. A bushel of apples when dried is reduced to 7 pounds at 20 per cent. moisture so that we would have roughly 3,000 lbs. of dried fruit containing 20 per cent of moisture and 30 per cent. of sugar. This gives in round numbers 900 lbs. of sugar produced by an acre of apples which may be favorably compared with the amount of starch produced by 20 bushels of wheat to the acre which at the most will not exceed 700 lbs of starch with, however, one fifth of gluten added. Similar comparisons might readily be made with the ordinary fruits of the South and the wisdom of drying for instance, bananas and transporting them as meal is easily illustrated. In view of the high cost of transporting ordinary food products the expediency of reducing their water contents is steadily forcing itself forward as a necessity. If the problem of lessening the cost of foods to our great cities is to be solved, potatoes for instance having only slightly more food value in their starch than apples have in their sugar must be prepared for transport by drying since the cost of transporting potatoes per bushel is nearly twice that of transporting wheat and other cereals whose food content is at least four times

as great. No health problem is probably more urgent than the finding of the best ways to not only supply food in its freshest and most acceptable form, but also to have it supplied to the millions of our cities at the lowest possible price. It is of course recognized that with cold being so successfully applied to the conservation of perishable foods as fruits that nothing is likely to prevent its ever increasing use; but it is very probable that a much larger local use of refrigeration will be found in cold storing fruits locally in their season during the busy season and later at the leisure of the large producer converting such into either dried or conserved products whose bulk will be very much less in keeping with their food value than in the fruit if cooled and shipped in its natural state.

Swat the Fly Poison Peril.

As the fly season comes apace we are constrained to call your attention of a warning contained in one of our Exchanges. It refers to dangerous practice of using poisonous killers, placed where baby hands may reach them to their own destruction.

Of forty-seven cases of arsenical poisoning of children reported from fifteen states from July to October, 1914, in thirty-four the children were three years old or less. In thirty-seven the children had drunk poisoned water from a saucer containing fly paper. In eight cases the children were poisoned by sucking the wicks in tin receptacles containing arsenic, sugar and water. In two cases the children were poisoned by sucking a sponge used to moisten these wicks in poisonous fly destroyers.

The similarity of the symptoms of arsenical poisoning to those of cholera infantum make it quite certain that there are a great many more cases than are reported. Cholera infantum, one of the most common ailments of very young children is prevalent at the time these poisonous fly killers are most used.

Most of the children are too young to tell the cause of their illness and unless seen taking the poison, arsenical poisoning may not be suspected.

Arsenical fly killers are commonly placed within the reach of young children. As sugar is used with arsenic for the purpose of drawing the flies, the arsenical fly killers in whatever form are extremely dangerous to children. Many more deaths are caused by them than were caused by the phosphorous match, which practically has been abolished because of the fatalities to children. No deadly poison is so commonly put within the reach of children as is arsenic for killing flies.

As there are effective and safe methods of killing flies there is no excuse for using poisonous fly killers of any kind. The use in the home of poisons of any kind is dangerous, but all other poisons combined do not present the same dangers to children as do the poisonous fly killers. The little ones should be protected from this really grave and exceedingly common danger.

The Chiropractor and Poetry.

We do not know just how much a chiropractor knows about his business, nor do we know exactly what that business is, but we do know from the verses printed below, and clipped from The Chiropractic Bulletin that he doesn't know anything whatever about poetry. We take it that this little ditty is supposed to embody the greatness of their "good work" for the "peepul". If so, their "work" shows up very badly. The general public ought to be proud indeed of such piffle as is served up to it by such a bunch of ignoramuses as chiropractors and others of that ilk.

THE ADJUSTER.

By Gilbert Patten Brown, D.O., D.C., D.S., D.P.

One day into my office
A little maiden came.
She was tender of manners,
But weak, feeble and lame.
"A Chiropractor you are,"
Said the dear little soul,—
"So kind doctor do treat me,
Please do sir, make me whole."

Away down in the country,
On a bright sumer's day,
She had fallen to the ground
While on a load of hay.
Her young spine had been fractured,
I soon learned from the child,
So I then began treating
But my treatments were mild.

I asked her for no money,
But her grandmother came
And I cured the old lady,
She was blind, deaf and lame;
In round dollars she paid me
For herself and the tot,
And to-day do they bless me
For their life's happy lot.

So, here's to our Science—
'Tis the greatest on earth;
To the young and the aged
'Twill give vigor and mirth,
Right here, in dear old Boston
My flag, I have unfurled.
The birth-place of new methods,
The nestor of the world.

PUBLIC WELFARE

MUDDLING ALONG

There is no scientific civilization. We just muddle along. No wonder a great modern seer entitled a book: "Civilization Its Cause and Cure." Only when our stupidity brings catastrophe do we make some effort at organization so as to increase our fighting strength, but as a rule, we keep a single "I" to personal profits, forget the common good, and let those who fail to do the same and take what comes. As a result the unselfish, being unsuccessful in this world's eyes, are despised.

Under our unsystematic competitive system and labyrinthine laws, the people suggest to one a horde of wolves. Each greedy wolf has the protection of the pack so long as he lives within the law, but if he is unselfish and fails, they simply eat him.

What shall we do? Noise will never save the race. What's the immediate plan? This is always the first question. No one however clever can tell all that should be done, but surely it is safe to do things that have been tried with success. Let us organize the production and distribution of those things necessary to the simple comfort of the people on the basis of the postal system. Let us take the profits (which always tend to merge into graft) out of those things which stand for the sweat and blood of the people. Let us take the speculative element out of land-dealing by taxing land values for the support of municipal and national governments.

This would still permit the private citizen to compete with the national non-profit system if he cared to and could. It would still leave the whole field of luxuries and superfluities in the hands of the private citizens till they get light and conscience on the matter and put the graft system out of their lives. On the other hand, it would secure work in the people's shops for all comers. It would abolish poverty, unless caused by sickness or bereavement, and this would be provided for in other ways. It would eliminate hurtful and foolish charities. Self-seeking would quickly come into the lime-light as a noxious thing and fade away in to a safe retreat.

In the Church of the Social Revolution in a Canadian city the other evening, the place was crowded. When an after meeting was announced not a person left the room till the second meeting was concluded. In the old type of church which I usually attend about five per cent. of the people would be the utmost number who would remain in response to such an invitation. Only by having some vital issue can you hold the masses. Social Revolution has gotten into the hearts of the people. Something's doing.

—Damon.

CANADIAN POETS

XV.

KATHERINE HALE

"The writer of 'Grey Knitting' needs no introduction to Canadian writers, as she is a well-known critic and short story writer, and one of the most prominent and best loved of all the band of Canadian women journalists. The name of Katherine Hale is an adornment to the literature of our Dominion, one of which we may be justly proud. Her verse throbs with a sympathetic harmony that cannot fail of an appeal, heightened as it is by a rich poetic beauty that bespeaks a lofty ideal. Those who know Katherine Hale, know her as an idealist who strives ever to visualize for the everyday toiler the haunting visions of beauty that are vouchsafed to the dreamer, and thus she brings the great things of life closer to her readers, ennobling and uplifting their trivial round."

—The Hamilton Spectator.

KATHERINE HALE is the pen name of Mrs. John W. Garvin, of Toronto, who was formerly Miss Amelia B. Warnock, of Galt, Ontario, the eldest daughter of Mr. and Mrs. James Warnock. She was born in Galt, but her father was a native of Kilmarnock, Scotland, and her mother was Miss Katherine Hale Byard, of Mobile, Alabama.

Miss Warnock was educated in Galt and at Miss Vear's School in Toronto.

The work of Katherine Hale is best known in Canada through her connection with the Mail and Empire, of Toronto, as its literary critic. She has also developed recital and lecture work, which is well and widely known. But it is probably through the medium of poetry that her name has carried farthest up to the present time.

A glance over many criticisms which followed the publication in November, 1914, of "Grey Knitting" (Briggs), a first and very slight volume of her verse, brings to one's notice that a number of the most encouraging criticisms were written by

English and American reviewers. It is also noticeable that the small brochure ran into four editions of a thousand each, before it had been on the market for six weeks.

The study of music has entered largely into the life of this writer, whose youthful ambition was the operatic stage. It was indeed through her graphic articles on Wagnerian opera, sent to the Mail and Empire from New York while she was a student in that city, that led to her appointment as the editor of "Contemporary Literature."

Katherine Hale's love of things lyrical has become so largely a part of her life that its effect is unmistakable in the poems which follow. Of their quality no one has spoken more truly than Miss Marjory MacMurchy in the Toronto News:

Mrs. Garvin's work at its best is delicate, charming, fairy-like, but unusually expressive of emotion and with unusual powers of imagination.

GREY KNITTING

All through the country, in the autumn stillness,
A web of grey spreads strangely, rim to rim;
And you may hear the sound of knitting needles,
Incessant, gentle—dim.

A tiny click of little wooden needles,
Elfin amid the gianthood of war;
Whispers of women, tireless and patient,
Who weave the web afar.

Whispers of women, tireless and patient—
'Foolish, inadequate!" we hear you say;
"Grey wool on fields of hell is out of fashion,"
And yet we weave the web from day to day.

Suppose some soldier dying, gayly dying,
Under the alien skies, in his last hour,
Should listen, in death's prescience so vivid,
And hear a fairy sound bloom like a flower—

I like to think that soldiers, gayly dying
For the white Christ on fields with shame sown deep,
May hear the fairy click of women's needles,
As they fall fast asleep.

YOU WHO HAVE GAILY LEFT US

You who have gayly left us youth—beshorn,
The town is sunless and the roof forlorn;
Dread stands beside the pillow every morn.

But glory is a beacon in the night,
So briliant that it bathes the world in light,
And lures these slim lads marching out to fight.

Country of mine, so very strong and young,
What of dark banners fast before you flung!
What of the awful battles yet unsung!

No joyous road I ask for you to-day,
I dare not pipe you peace along the way
That leads to Darkness or increasing Day.

For Heaven plays the prelude: drum and fife
Merging the morning into larger life
Challenge the noon of banners and of strife;

Until, within the living crimson flame,
There seems to burn a new-born country's name,
The Friend of Light, and Honor's deathless fame.

IN THE TRENCHES

(Christmas, 1914)

War gods have descended:
The world burns up in fine!
Warm your hands at the trench's fire,
Dear lad o' mine.

Bullets cease this Christmas night,
Only songs are heard.
If you feel a phantom step,
'Twas my heart that stirred.

If you see a dreamy light,
'Tis the Christ-Child's eyes;
I believe he watches us,
Wonderful and wise.

Let us keep our Christmas night
In the camp-light shine;
Warm your hands at the trench's fire—
They still hold mine.

WHEN YOU RETURN

When you return I see the radiant street,
I hear the rushing of a thousand feet,
I see the ghosts that women come to greet.

I can feel roses, roses all the way,
The fearful gladness that no power can stay,
The joy that glows and grows in ambient ray.

Because slim lads come marching home from war?
Truly, slim lads, home from the Very Far:
From fields as distant as the farthest star.

It will be strange to hear the plaudits roll,
Back from that zone where soul is flung on soul,
Where they go out like sparks to one straight goal.

Where souls go out as moments fly,
Urging their claim on the unbending sky—
Surely it must be wonderful to die!

. . . . . .

When you return I see the radiant street,
I hear the rushing of a thousand feet—
Living and dead with roses we shall greet.

I USED TO WEAR A GOWN OF GREEN

I used to wear a gown of green
And sing a song to May,
When apple blossoms starred the stream
And Spring came up the way.

I used to run along with Love
By lanes the world forgets,
To find in an enchanted wood
The first frail violets.

And ever 'mid the fairy blooms
And murmur of the stream,
We used to hear the pipes of Pan
Call softly through our dream.

But now, in outery vast, that tune
Fades like some little star
Lost in an anguished judgment day
And scarlet flames of war.

What can it mean that Spring returns
And purple violets bloom,
Save that some gypsy flower may stray
Beside his nameless tomb!

To pagan Earth her gown of green,
Her elfin song to May—
With all my soul I must go on
Into the scarlet day.

TO PETER PAN IN WINTER.

"And so it was arranged that Peter Pan should fly back alone to Fairyland, and that once a year Mrs. Darling would allow Wendy to go and stay a whole week with him to do his Spring cleaning."

Spring house-cleaning in Arcadie,
When every bough is bare;
"If it bring Wendy back to me,
"I wish," quoth Pan, "'twere here."
For Peter Pan is sometimes sad
In spite of all that's sung;
He has to pipe and dance like mad
To keep this old world young.

And as he pipes the fairies light
A star for every tone.
(Do starry lights burn just as bright
When one is all alone?)
And as he pipes small elfin folk
Foregather from the moon,
And dance, and flash, and fade like smoke
While he plays on and on.

His magic tree-tops shine with ice
  That used to melt in green,
The people creep like small brown mice
  Down in the worlds between.
And Wendy may be well or ill,
  And play or go to school;
But Pan sits high and pipes his fill
  And minds no mortal rule.

O Peter Pan the winds are cold,
  The snow is deep and high;
The Never-Never Land is gold,
  And yet—perhaps you sigh;
Perhaps you know, though just an elf,
  In your small fairy way,
How wretched one is by himself,
  When Some One Else can't stay.

So pipe your sweetest, Peter Pan,
  And clang the silver bells;
Send all the elfin din you can
  To where the Great One dwells,
Who holds the Spring within His hand,
  That you, who wait above
And we, in this midwinter world,
  May call again—to Love.

RESPONSE

Have you known pipers in a magic mood
  Take a slim branch all winter-worn and bare
  And breathe on it, till notes that were not there
Seemed to steal out through the enchanted wood?

Have you seen Spring, in luring, roseate guise
  Gaze on some meadow, desolate and worn,
  Until, like softest footsteps of the morn,
Pink buds responded to those questing eyes?

Then you have felt the stirring in my heart,
  O gazer on a life bereft and cold!
  God yield to you the promise you unfold,
And let me go, awakened, yet apart.

A SONG OF SUCCESS

I sing of triumph and of gold,
I sing the inmost hopes of men;
Sing, until dead souls call again
Those early visions long grown cold.
I sing by some predestined power,
Till every heart that covets life
Awakes and cries, "God give me strife,
And give me manhood for my dower!"

I sing of sweet things left undone,
I sing of love lost by the way,
And precious small things, grave and gay,
Caught in this web of woven sun.
The early dawn notes wildly clear,
The tender treble of desire,
The sun of youth's own golden fire—
This is the undertone you hear.

For Life still knows and takes its own—
Strange Life, imperative and brave—
And urges, "While one soul's to save
You and your song are never done!
For all the listless, leaning world
That has not fought, or swooned, or died,
Or pressed its youth into this tide,
You must sing on with hope unfurled."

So sing I of the Great Success,
The capture of the soul's domain,
The failure that may not remain,
The outward flight beyond redress.
And God alone gives Song the breath
That urges it, so great, so clear,
Far out above the fields of fear,
On to Himself—through life and death.

PHANTOM SHIPS

It is an endless world of blue at noon
  For those who watch a vacant line of sea:
For those who pray for sundown and the moon
  And say "now come the lost ships home to me."

A strange fleet touched my beach one summer night,
  One night alone, till Dawn awoke and kissed
The wings of promise with his purple light,
  And sent them softly through a cloud of mist.

Dear God! Upon this shore where men abide
I waved them out like birds upon the foam,
Now in the glaring noon so clear and wide,
I grope for dreams like some lost child for home.

AN OLD SUN-DIAL

(Among the treasures of the Vatican Museum in Rome is an ancient stone sun-dial cut in the form of a rose.)

Down by the Vatican there blooms a rose,
A sun-dial flower much carved and age bepearled,
Guarded by papal Rome from friends and foes,
And quaintly called "The-Rose-of-All-the-World."

A myriad warmths made perfect this strange flower,
Whose very heart is woven of heat and cold;
It has outsung all pageantry and power,
And loves all loved, and suffered for, and told.

Out of the mystery of ages fled
It blooms how clear, how selfless, and alone,
Singing throughout the silence of the dead
In quenchless radiance of its quiet stone.

I hear, as to a lover far and bright,
"O Sun that urgest me, must I give all?
Thy face I seek, and so forever light
The little hours of men that grope and fall;

Thy face I seek and so forever shine,
I burn continually nor long to blaze,
But sink the moment never wholly mine,
Deep in the rapture of reflected rays.

I long, I turn, I radiate to Thee,
Who art the All-in-One, the One-in-All,
The moulder of this roseate form of me,
Which is my answer to thy urgent call.
The Song thou singest, like the Sun, endures
O Rose, who art the poetry of Power!
The passion of the centuries is yours,

But leave me death and love's one human hour.

SONG OF ROSES.

O singing Youth, thou wert to me
A pink rose of expectancy:
Laughing I laid thee on my breast
All radiant of Joy's bright quest.

Therewith on the appointed day
Came Life to meet me on the way:
A gold rose gave into my hand—
The seal of strength to understand.

Then, like some wide transforming morn,
Soul signaled soul and love was born,
And Youth that laughs and Life that knows
Melted into one crimson rose.

Now God alone can make complete
This little garland soft and sweet
And give me Death's white rose of light
Forever fresh, forever bright,

That I may bind with cool green leaves
The flowers of Life with Death's pale sheaves,
And send them stripped of thorn and rue
Perfect and passionless—to you.

NOONDAY

But yesterday the piper Spring
Sat blowing tunes that turned to green,
And through the little naked boughs
The color of his song was seen.

As soft the tunes the piper played,
So soft the green, like shaded light:
Then wound our love a slender lane
With dear, indefinite delight.

But now, before we knew, 'tis June:
So deep, so dark, the leaves have grown:
The pipe is lost, the lane has led
Down to a gate called Life, my own.

CONTRAST

Out in the heart of the country,
Where beauty looks truth in the face,
I am searching the dwellers-in-silence
For word of the ultimate grace.

Yet from outpost of mountain and valley
No sign of the secret has come
And mystery hovers forever
O'er those who are sightless and dumb.

But in anguish and heat of the pavements,
Like light from the heart of a storm,
All cool and pure-petalled and perfect
Creep the exquisite flowers of form.

And where life hurries restlessly onward,
Afar from the grove and the sod,
Men carve in the cities of sorrow,
Art's joy-giving symbols of God.

THE ANSWER.

Unaltered aisles that wait and wait forever,
O woods that gleam and stir in liquid gold,
What of your little lover that departed
Before the year grew old?

The leaves are very perfect in the forest,
This is the perfect hour of summer's wane,
And but last year we watched the blue October
Between the parted boughs, as now, Lorane.

We asked of Life the old, eternal questions;
We asked of God: "Art Thou not here; and why?
Why never come with heralds of the morning
Across this blaze of sky?

"Why build Thyself these great and perfect places;
Why build, and never come to walk therein?"
And only rippling sunshine was the answer,
Or little pattering footsteps of the rain.

And God said: "I am loneliness and sorrow,
And I am questioning hope, and I am strife;
I am the joy that surges through my forest,
And I am death in life.

"I am the singing bird, the leaf, the shadow,
I am the circle of the endless earth;
Out of the infinite of all creation
I am the silence where the soul finds birth."

And so, unaltered aisles that wait forever
And woods that gleam and stir in liquid gold,
You have made answer for its little lover
Who passed e're you grew old.

But still we sought Him, in the blue-white winter,
Or in the rosy spring or shadowy fall;
And faithful winds went forth with us to meet him,
And all the Heaven was one vibrating call.

We sought Him, and our own love seemed the answer;
We called Him, and the forest smiled us back.
Then we forgot, and only looked for laughter
Along the wild-wood track.

Yet sometimes, when the moon sang down her cadence
Through all the forest roof so old and high,
We trembled from the sense of all we knew not—
The awful incompleteness of the sky.

And all the years we two went forth together
We never heard that third step on the sod.
I was alone—alone before I felt it,
And turned, and looked on God.

IN DARKNESS

Moonlit and vistaless—each dream a star—
My ocean lay—a radiant track to thee!
Then fading light, and on a darker sea
God's wondrous gift of distances—and worlds afar.

Academy of Medicine, Toronto
Section of State Medicine

SYMPOSIUM ON CANCER

THURSDAY, MARCH 25th, 1915

INTRODUCTORY REMARKS BY THE CHAIRMAN

By DR. C. J. O. HASTINGS

THERE were 7,000 deaths from cancer in Canada in 1913; between 80 and 90 per cent. of these were of persons over 45 years of age. Every decade materially increases the danger from this disease. After the age of 45 or 50, cancer causes as many deaths as tuberculosis. Therefore, as a public health problem it is second only in significance to tuberculosis. Probably no other subject received as much consideration at the last meeting of the American Medical Association as that of cancer, and yet no one knows—science has not revealed— the real cause of this dread disease. However, it is comforting to know that it is not comunicable, or at least there is no reliable evidence that it is, and many experiments have been made on the lower animals to ascertain whether it was or not.

In the experimental work on mice by Dr. M. Lyle in Chicago, heredity has been shown to play an important role, yet in no case could cancer be produced by the closest contact or even by feeding the mice on cancerous tissue. This work extended over 10,000 of these little animals.

However, it is known that constant irritation of a part, especially mucous membrane, of those predisposed frequently results in the development of cancer. It is held by some that meat diet predisposes to cancer, and that disease is rare among those living exclusively on vegetables, but this has not been confirmed.

We must admit that we have but a hazy knowledge of the cause of the disease. We know that of the innumerable cells of which the body is composed, each organ has had no special kind of cells to do their assigned duty and, when they are exhausted or die, new ones take their places. Occasionally some of these cells escape from the control of their natural laws and in some unknown way develop into an abnormal growth or tumor.

There are many examples of constant irritation bringing about this change, for instance: Cancer of the lip or tongue by repeated irritation of a clay pipe, cigar or the jagged edge of a tooth. The same is true of the repeated irritation of other parts of the body. In fact, a large percentage of the cases of cancer give a history of some local irritation or injury.

Over 80,000 lives are sacrificed annually in the United States and Canada by ravages of this dread disease, and yet 50 to 75 per cent. of these lives might have been saved, or might be saved, by early diagnosis and prompt treatment. There is probably no more important field of activity for Departments of Health than a thorough educating of the public as regards the early recognition and the extreme importance of prompt treatment. They should be educated to obtain medical advice immediately on recognizing any abnormal growth or any source of irritation that refuses, after a reasonable length of time, to heal. Especially is this true in people after 40 years of age. These growths, if removed early, when first recognized, if possible, in the pre-cancer stage, from 75 to 90 per cent. would probably not be fatal.

Obviously then, the disastrous results of this dread disease is for the most part preventable. It often carries off its victims at the most valuable time of their lives and when the parental care is most needed for their offsprings.

A note of warning should be sounded here in regard to the faker. There is no medical cure for cancer, and there is probably no worse criminal behind the bars of any of our prisons than the man who advertises and endeavors to sell a cure for

cancer. He is not only getting money under false pretences, but also robbing the victims of their only chance for life. Is he not, therefore, guilty of manslaughter?

Early surgical operation or cautery and radium are the only permissible treatments known to medical science at present. What the future holds we do not know. A most valuable educative campaign is in operation in Portsmouth, England, by the Department of Public Health. Every month or two they propose to publish official notices. In August last I had published in the Public Health Bulletin a set of these rules handed out by the Health Department of Portsmouth for the guidance of citizens as regards the early recognition and prompt action in connection with this great disease.

It must be quite apparent that for the medical profession, either physicians or surgeons, to attempt an educative campaign such as the public is entitled to along this line, would not be received at all times in the spirit in which it would be given. The public, or many of them, are rather skeptical and are only too likely to think that the surgeons are anxious to operate on the slightest excuse for doing so, but this does not apply to administrators of Public Health or Preventive Medicine. It is an essential part of their duty. They have nothing to gain, and a well organized campaign of education directed by a Department of Health must necessarily be recognized as being done solely in the interests of humanity.

WHAT THE PHYSICIAN CAN DO TOWARDS THE PREVENTION OF CANCER

By GRAHAM CHAMBERS, M.D.

At a discussion on cancer at a meeting of the American Gynæcological Society in 1913, Mr. F. L. Hoffman, the Statistician of the Prudential Assurance Company, of America, stated that seventy-five thousand people died annually from cancer in the United States, and half a million throughout the civilized world, and that the mortality from this disease was increasing at the rate of about 2½ per cent. per annum. He also said that in New York the death rate from it had increased from 37.2 per 100,000 in the three years ending with 1872, to 80.5 per 100,000 during the three years ending with 1912. This high mortality in what is now generally acknowledged to be in many cases a preventible disease, and in the majority of cases a curable disease if suitably dealt with at a very early stage, naturally suggests the imperative necessity for the intelligent co-operation of members of the medical profession in the adoption of all possible measures for its control.

In discussing the preventive treatment of cancer it is obvious that a knowledge of the various causes which are assumed to favor its development is essential. The problem of its ætiology still remains obscure, but the special predisposing factors which have been suggested may be grouped under two principal headings, namely (a) Endogenous Causes, and (b) Exogenous Causes.

(a) *Endogenous Causes*—The endogenous causes are dependent upon peculiarities inherent in the constitution of the individual, and can scarcely be regarded as direct exciting causes, but rather as predisposing factors. They include (1) age, and (2) heredity.

1. *Age*—A study of the statistics given by the various writers on the subject, and also of the cases which have come under my own observation clinically, indicates that age exerts a very important influence upon the incidence of the disease. Although there is a certain amount of variation in the proportions given, most authorities are agreed in placing the maximum mortality from this cause between the ages of forty and sixty. It is somewhat rare before the age of thirty.

It therefore appears quite justifiable to assume that certain changes in the organism, due to advancing age, are amongst the most important factors in establishing

a predisposition to cancer. The exact nature of these changes has not yet definitely been determined, but it seems probable that the interference with circulation and the diminished activity of the various metabolic processes of the body, which are constantly associated with old age, are factors in their genesis. In cancer of the stomach for instance the statistics appear to indicate that these degenerative changes are the most important of all the causative factors, as up to the seventh decade of life its increase in frequency is approximately parallel to increase in age. I should like also to refer to the influence of old age on the incidence of cancer of the skin. In a very considerable proportion of these cases the malignant growth is preceded by benign lesions, which are known as seborrhœic or senile warts. Such seborrhœic lesions are very common in old age, and are believed to be caused by microbic infection of the skin, which has been more or less deprived of its defensive power by senile degenerative changes. This is, of course, a natural inference, because it is universally recognized that tissues which have become to a greater or less extent functionally incapable become at the same time more susceptible to the influence of irritation.

2. *Heredity*—The question of the importance of heredity as a predisposing factor in the development of cancer has given rise to a considerable amount of discussion, and very different opinions have been expressed in regard to it. That there is a more or less universal consensus of opinion that family predisposition does play a part in individual tendency to the development of carcinoma is, however, obvious from the fact that as a rule insurance companies refuse to accept, at any rate for long periods of insurance, people who have had more than one case of cancer in their family history. This is of very considerable significance in this connection, as the collection of statistics and data of this description naturally represents an important part of the business of an insurance company, and it is therefore easy to understand that it would spare no trouble or expense in obtaining the most accurate information possible on such subjects. In arriving at a definite conclusion in this connection, however, the great frequency of cancer in general should be remembered, which makes it extremely improbable that there are many families, if any, without some ancestral history of it.

In regard to the question of heredity in cancer the Committee of the Imperial Cancer Research Fund, London, England, has published the results of some very interesting researches which have been made in connection with it. (1) Experiments on mice showed that the percentage of cancerous offspring is greater from cancerous than from non-cancerous ancestry in every age group. The committee arrived at the conclusion, as a result of these experiments, that whilst it is at present impossible to explain in what manner this predisposition is transmitted, it appears to be definitely established that it does not represent a general constitutional predisposition, affecting the whole of the body to an equal degree, but that the transmitted tendency affects one organ system, and is more or less definitely localized to certain special tissues. Heredity is no doubt an ætiological factor, but its value is difficult to estimate, and we know as little of the particular causes which favor inherited predisposition to cancer as we know of the primary cause of carcinoma in general. In this connection we might mention that certain diatheses, such as those predisposing to gout, diabetes, tuberculosis and constitutional adiposity, appear to be fairly common in the families of individuals suffering from cancer.

2. *Exogenous Causes*—The exogenous causes, or those which are recognized as directly conducing to the setting up of a cancerous process, may all be included under the common heading of constant and long continued irritation, the ætiological relationship of which to cancer in various parts of the body has been definitely established clinically. No satisfactory explanation has yet been offered of the manner in which it leads to proliferation of the epithelial tissues, but the fact remains that irritation of some kind appears to represent a very important factor in the direct causation of primary cancer in most of the organs of the body. The following examples may be given of conditions in which clinical experience indicates that it has an undoubted influence on the incidence of the disease.

(1) British Medical Journal, 1911, Vol. II., 171.

(1) The frequency of epithelioma in chimney sweeps and workers in paraffin and tar, all of which occupations entail constant irritation of the skin.

(2) Epithelioma following senile warts. A senile wart is believed to be due to microbic infection. The lesion pursues a very chronic course, and probably exhibits a greater tendency to undergo malignant degeneration than any other affection of the skin.

(3) The great frequency of cancer of the lower lip as compared with that of the upper lip, which is extremely rare. Cancer of the lower lip occurs more often in men than in women, and this has been attributed to the fact that the lower lip is exposed to greater irritation than the upper lip, both from smoking and from the secretions of the mouth.

(4) The greater frequency of cancer in the pyloric portion of the stomach this being the part of the organ which is subjected to the greater irritation.

(5) Cancer following long continued exposure to the X-rays.

After this very brief resume of what is known in regard to the etiology, I should like to make a few remarks upon precancerous lesions, and upon the work which the family physician could and ought to do in the prevention of the disease. The active practice of preventive medicine is at the present time chiefly in the hands of a special department of the profession; namely, that devoted to the care of public health; and the ordinary general practitioner, who is qualified both by education and experience to advise his patients in regard to the prevention of the disease, usually does comparatively little from this point of view. This is, no doubt, partially due to the defective education of the laity in matters pertaining to the prevention of disease. They know practically nothing about the great majority of diseases, and the manner in which they can be prevented or minimized in severity, and consequently they rarely seek the advice of the family physician excepting for the cure of a disease.

The diseases mentioned in the Public Health Acts are not, by any means, the only ones which can be prevented, to a certain extent, by detection and suitable treatment in the early stages. This especially applies to cancer, which during the year 1912 caused no less than 1,778 deaths in the Province of Ontario, or about five and a half per cent. of the total number of deaths in the Province during this period. It is, therefore, one of the most dangerous and fatal diseases with which we have to contend.

There are a few characteristics of cancer which I think it is highly desirable that every layman should know. They are as follows: (1) That cancer in the early stage is invariably a localized disease, and is then, as a rule, curable by surgical treatment. (2) That in many instances the malignant growth is preceded by a benign lesion. As regards cancer of the skin this statement is always true, and it probably applies also to cancer of the lip, tongue, and other parts of the body. If efforts were made to educate the laity along these lines, I feel confident that they would lead to a considerable reduction of the mortality from the disease.

In this paper I shall limit my remarks to precancerous lesions of lip, mouth and tongue, skin, and stomach.

Microscopically there are at least four varieties of precancerous lesions of the lips:

1. Localized scaly hyperkeratosis.
2. Leucoplakia.
3. Fissure.
4. Cutaneous horn.

1. *Localized Scaly Hyperkeratosis*—This is, in my experience, by far the most common precancerous lesion of the lip. In the majority of cases it is localized to one part of the lower lip, but in a few it involves it completely. There is frequently a history of irritation. In some cases the lesion is associated with senile warts, and both the macroscopical and microscopical appearances may resemble those observed in the latter condition. In other cases the characteristics of the lesion may be very similar to those of seborrhœic dermatitis, and it is associated with seborrhœic dermatitis of the scalp and other parts of the body. The fact that the condition does not, as a rule, respond to the treatment which is invariably successful in bringing about a cure of seborrhœic dermatitis indicates, however, that it is not simply a variety of the latter condition.

2. *Leucoplakia*—This is characterized by whitish plaques on the mucous membrane of the mouth and lips. Syphilis is

in some instances a predisposing cause, but the exciting agent is usually some form of irritation, such as that due to smoking. In the first place the lesions are usually smooth and almost imperceptible on palpation. Subsequent thickening, in my opinion, may indicate malignant degeneration.

3. *Fissure*—Fissures of the lip are generally of a benign nature. They are sometimes observed in the early stage of cancer; or the patient may give a history of fissure formation. In some instances, however, a fissure is seen in the centre of slightly elevated epithelimatous patches, and it then represents rather a complication of the cancer than a precancerous condition.

4. *Cutaneous Horn*—Cutaneous horn of the lower lip is not uncommon, and is liable to undergo malignant degeneration. Transformation into an epithelioma is indicated by thickening and infiltration around the margin of the base. In many cases it is difficult to determine whether the lesion is benign or malignant without a microscopic examination.

These precancerous lesions of the lip are, as a rule, amenable to treatment. In the treatment of a localized scaly patch a soothing ointment, such as cold cream or zinc ointment, is useless. One requires a mild caustic, such as solution of acid nitrate of mercury or glacial acetic acid. X-ray and irradiation with radium are effectual, as they are also in leucoplakia and cutaneous horn.

Mouth and Tongue—In a large proportion of cases of cancer of the tongue and mouth, the development of the cancer is preceded by precancerous lesion, of which leucoplakia, and an erosion due to irritation of the tooth are common. There are two etiological factors of leucoplakia known, namely, leuestic infection and irritation by smoking. Possibly the use of irritating tooth powders is also a causative factor.

In the treatment of leucoplakia, one should remove all sources of irritation. Local treatment is also required. In my opinion, considerable thickening of a leucoplakia patch should be considered a danger signal.

Skin.—There are many benign lesions of the skin upon which malignant disease may be engrafted. Simple ulcer, or the cicatrix of a simple ulcer is apparently a very rare precancerous lesion. A lupus ulcer or a lupus scar is sometimes the seat of a cancerous growth, and occasionally one sees cancer engrafted on a lesion of psoriasis or a mole. By far the commonest precancerous lesion, however, is a scaly or crusted lesion usually described as a senile wart.

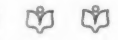
The lesions of the skin which are designated senile warts are not all of the same nature. Some are covered with crusts firmly adherent to the skin. Others are covered, partly with scales and partly with crusts, dry, and yellowish-white in color. If one removes the crusts from the lesion, an epidermis denuded of the corneous layer is exposed. This surface, on examination with a lens, is finely papillomatous, vascular, and somewhat succulent. Bleeding results from the slightest abrasion.

In the treatment of these senile warts a caustic, such as acid nitrate of mercury or glacial acetic acid, should be applied to the base after the crusts have been removed.

Stomach—As regards precancerous lesions of gastric cancer, we have definite information, both clinical and pathological, on one, namely, peptic ulcer. The frequency with which cancer is engrafted on a peptic ulcer of the stomach is still disputed, but there is no doubt that malignant degeneration is not uncommon. According to my experience, malignant degeneration only occurs in ulcers situated in the pylorie region of the stomach. Peptic ulcers of the first part of the duodenum, although probably as common as those of the stomach, rarely become malignant. What is the explanation of this feature? It is evidently not the ulcerative process of a simple ulcer which leads to malignant disease. Is it possible that the malignant degeneration is caused by undue irritation of food-stuffs retained in the stomach through pyloric obstruction? This seems to me to be a satisfactory explanation, for, as already stated, the pylorie region of the stomach is the part in which one usually sees cancer engrafted on an ulcer. I may mention that a considerable degree of obstruction of the outlet of the stomach may exist without giving rise to marked disturbance of the stomach. Retention-vomiting is a sign of advanced pylorie stenosis.

If we accept this explanation of the occurrence of malignant degeneration of peptic ulcers of the pyloric region of the stomach, then it is most important in the treatment of peptic ulcer, whether medicinal or surgical, that not only the ulcer, but also the obstruction of the outlet should receive attention.

Chronic asthenic gastritis is believed by some clinicians to be a precancerous condition, but the frequency of this sequence has not been determined. In my experience I have only seen two cases in which cancer was secondary to this type of gastritis. It is possible, however, that inasmuch as chronic asthenic gastritis frequently exists with subjective symptoms it may be a more common precancerous condition than is at present thought.



OBSERVATIONS ON THE PREVENTION OF CANCER FROM THE SURGEON'S STANDPOINT

By A. PRIMROSE, M.B., C.M. Edin., M.R.C.S. Eng.

ATTEMPTS have been made to educate the public generally regarding the early recognition of cancer and to impress upon the laity the vital importance of securing treatment ere it is too late. Cancer in the early stage is a purely local disease and during that period may be completely eradicated by surgical operation, —on the other hand, when wide dissemination has occurred beyond the local focus a cure may be impossible.

A large amount of work is being expended on the study of cancer in the laboratory and we are all optimistic enough to believe that much has been accomplished which will eventually prove of material benefit to mankind in the eradication of this widespread scourge. Clinical experience has, however, offered abundant opportunity for observation as to the course of the disease, and of the results obtained by the treatment of malignant disease on a great variety of lines. To-day we find surgeons practically unanimous in concluding that early and radical operation holds out the best prospect of cure. If we had to choose between the two we might urge that it is more important for the operation to be early than that it should be radical, because statistics have shown that in cancer of the breast at all events, more cures are effected by early incomplete operations than by extensive late ones. It is therefore obvious that this doctrine should be taught the laity and that early relief should be insisted upon by the medical attendant in every instance. Formerly patients were sent to hospital for surgical treatment after the medical attendant had watched the growth carefully for weeks or months until he was quite sure it was malignant and demanded surgical interference. Now fortunately things have changed and patients are sent when a growth appears which may or may not be malignant. The surgeon operates and if he cannot be reasonably sure of a diagnosis arrived at by clinical study, he must arrange for a quick section, which may determine beyond doubt the character of the growth and he will then act accordingly. Unfortunately there are some in the profession who have not yet awakened to the importance of these observations and we must continue to reiterate facts until the victims of cancer will all find relief at an early date and will no longer present themselves when the hope of relief by operation has vanished.

The medical attendant has a very grave responsibility in the treatment which he employs in such cases. While, as we have stated, it is a well attested fact that an early radical operation holds out the best prospect of cure, yet unquestionably the family physician will occasionally continue to temporize in cases of doubtful character. In illustration of my point I may cite some of my own findings in a critical analysis of 323 cases of breast tumour. The full text of my paper will be found in the American Journal of the Medical Sciences, January, 1913.

A fact which comes out in these statistics is that no fewer than 17 cases came to operation for recurrence where the tumour

only had been removed. On going into the history of these 17 cases one is justified in concluding they were cases of cancer when first operated upon. If this be the case then it is indeed time we should protest against the practice, which one fears is much too common, of removing a breast tumour without establishing a definite diagnosis in every instance. If a pathological laboratory is not available in the remote parts of the country where these operations are of necessity occasionally undertaken, then it is a simple matter to send the specimen to some larger centre for pathological report, and then the case may be dealt with according to the findings without undue loss of time.

It was noted, too, that the longest period elapsing after the radical operation before the operation for recurrence, was three years and after incomplete operation eight years. The average period elapsing was, after radical operation 14.2 months, and after incomplete operation 23.4 months. The numbers under review are perhaps not sufficiently large for definite conclusions, but they suggest that where recurrence does take place it is more rapid after the radical operation than after the incomplete one. The writer is unaware of any observations on this point. It is obviously one well worth noting, and should be further investigated.

Murphy believes the final results in carcinoma of the breast have not been materially improved in the last quarter of a century. He states that cases having no demonstrable lymphatic metastases at the time of operation remain well in a considerable percentage of cases exactly as they did with our forefathers who excised breast tumours and did nothing else. He believes, however, that any hope of improvement in our results lies in early recognition and prompt removal of the disease.

In reviewing my series of breast cases one endeavored to determine the length of time the tumor had existed prior to surgical relief. The following table was constructed:

Average Duration of Disease at Time of Operation	Months
Malignant Growths; average duration. (This does not include two exceptional cases where the duration was said to have been 12 years. Exclusive of these two the longest period was 8 years and the shortest 1 week).	14.375
	Per Cent.
Those who came to operation under one year	54.5
Those who came to operation under six months	35.4
Those who came to operation under three months	19.0
Those who came to operation one month and under one month, from initial symptoms	8.4
	Months
Benign growths; average duration, adenofibroma. (This does not include one exceptional case of 15 years and another of 24 years).	15.8
Chronic mastitis (This does not include an exceptional case of 13 years).	2.9

It appears to the writer that the foregoing table is significant, showing as it does that nearly 50 per cent. of our patients are alowed to go untreated for a whole year before they come to operation. On the other hand, only 8 per cent. come to us during the first month of trouble. Can anyone doubt that our percentages of cures would be vastly increased were the figures reversed? It is to be hoped that the time is not far distant when women will of their own initiative seek the advice of a practitioner of medicine whenever a tumor of the breast appears and that the doctor in turn will insist upon an immediate diagnosis being made. In the event of cancer being found then the modern radical operation will be carried out with the best possible prospect of saving the life of the patient.

The writer is optimistic enough to believe that sooner or later such a desirable state of affairs will be brought about, and then the surgeon will be able to show vastly improved results in the operative treatment of this terrible malady.

Not only is it necessary to speak thus of the responsibility of the physician, but several campaigns have been inaugurated within recent years to provide for instruction of the laity on this important subject.

The object is to educate the public so that they will be induced to seek skilled medical advice at the earliest possible moment when manifestations of disease present themselves which might prove to be malignant. Such popular journals as Collier's Weekly, The Ladies' Home Journal, McClure's Magazine, Harper's Weekly, the Baltimore Sun, etc., have published articles dealing with the early indications of cancer. These were chiefly from the pen of Mr. Samuel Hopkins Adams. Dr. Cullen read a paper on this subject at the London meeting of the Canadian Medical Association in 1913, and noted the following results from such articles:

"Within a week after the appearance of Mr. Adams' publication a colleague of mine told me that he had just operated upon a patient with cancer of the breast. The nodule was not larger than a pea. When asked why she came so early, she said that she had just read the article in the Ladies' Home Journal and felt that it was unwise for her to delay,—the outlook in this case is excellent. Another colleague had for weeks been urging a patient with cancer to be operated on, but to no purpose. Within three days after the appearance of the article which she had carefully read, she entered the hospital and was operated upon. Dr. C. Jeff Miller, of New Orleans, wrote me that, as a result of the Ladies' Home Journal article, a lady soon came to him with an early cancer. Dr. T. C. Kennedy, of Indianapolis, under date of May 13th, 1913, writes: 'A lady out in the state noticed a lump in the left breast. Seeing the article in the Ladies' Home Journal she immediately consulted her family physician who referred the case to me. I operated on her at St. Vincent's Hospital last Thursday, doing a Halsted. Here is a case that has a good chance of getting entirely well, as it was taken early.'

"Dr. Franklin H. Martin, of Chicago, early in May of this year saw a beginning carcinoma of the breast. The husband had just read the article in the Ladies' Home Journal, and insisted on his wife consulting a surgeon. Dr. Martin removed the entire breast and the axillary glands, and feels sure that the outlook for a permanent cure is an excellent one."

While not advocating unreservedly the publication of such articles in popular journals one desires to bring the question before Medical Health Officers for careful consideration.

A very superficial view of the subject is sufficient to convince one of the value of such contributions through the press. On the other hand, if care and good judgment are not exercised, there is a danger of causing unnecessary alarm and of producing neurasthenics of the worst type by encouraging introspection in individuals who are already suffering from an oversensitive imagination.

Vital statistics would seem to indicate that cancer is more prevalent than it was a quarter of a century ago, and unquestionably the recorded official death rate from cancer is higher than in the last generation. There are so many considerations entering into the argument that it is difficult to reach accurate conclusions. Such for example as the diagnosis which unquestionably, at all events in cancer affecting certain localities of the body, is more accurate and more frequently arrived at today than it was 25 years ago. This would increase the number of reported cases of cancer; on the other hand the greater success in eradicating cancer by modern surgical methods would tend to lower the death rate from malignant visine.

Some interesting observations regarding the incidence of cancer in different parts of the body are made in a paper "On Changes in the Recorded Mortality from Cancer and Their Possible Interpretation" by Major Greenwood, Jr., and Frances Wood. (Proceedings of the Royal Society of Medicine, Mar. 27, 1914).

The following excerpt from this paper is noteworthy: "Beginning with the males (corrected figures) we notice that the stomach rate has increased less than that of the tongue, which is represented by a line of sensibly the same gradient as the rectum; the rate of intestinal cancer has advanced faster than any of the others. Among females, we find a similar rate of increases both for the breast and the stomach, a slightly greater rate of change in the rectum and a markedly steeper gradient for the line of intestinal cancer. The slope of the uterine rates is actually negative. The position of intestinal cancer can easily be explained on the hypothesis of improv-

ed diagnosis, but the other results seem to us quite inconsistent with this supposition. Cancer of the tongue in males and of the breast in females, typically accessible sites, have increased faster than cancer of the stomach, the difference in the case of the tongue being quite appreciable. Cancer of the rectum, again, has not advanced very much, if at all, faster than that of the accessible sites. It is a point not without significance that cancer of the rectum has in both sexes increased faster than cancer of the stomach, although the former has always been presumably easier to diagnose than the latter."

One might expect to find the mortality from cancer lower than formerly because of the modern advances which have been made in its radical treatment. We have a right to believe that improved methods of treatment have actually produced a lower death rate than would otherwise have been the case. In spite of this fact, however, the official returns show an increased mortality. As we have already stated the question is a very complicated one for argument and it is hard to fix the responsibility for this increase on any one factor, or on any group of factors. The problem is one demanding the most careful consideration of the scientific expert in preventive medicine. From the surgeon's standpoint, however, the factor which will have most effect in reducing the mortality from cancer is the early recognition and early radical removal of the disease.

THE ATTITUDE OF THE GYNAECOLOGIST TO CANCER

By F. A. CLELAND, M.D.

As regards cancer in relation to Gynæcology, although cancer may attack any of the pelvic organs, the most important and common condition we have to deal with is cancer of the uterus; and this is so much more frequent than cancer of the other pelvic organs that, in a discussion of this kind, one may well limit oneself to the consideration of cancer of the uterus alone.

All types of cancer of the pelvic organs still have a very high mortality, in spite of the advances which have been made in diagnostic methods and in the technique of operation. At a meeting of the Clinical Congress of Surgeons of North America in Chicago on November 13, 1913, Mr. Frederick L. Hoffman, (1) statistician to the Prudential Assurance Society of New York, stated that in the registered areas of the United States of America, during the past year there had been 11,235 deaths from cancer affecting the female genital organs. As there are extensive districts outside the registered areas, this does not of course represent anything like the total mortality from this disease. The best statistical reports available from Great Britain and Ireland show that one out of every eleven women dying after the age of thirty-five die from cancer of the uterus.

Since most of the authorities on the subject are now agreed that cancer of the uterus, in common with that in other parts of the body, is curable by radical removal in its very early and localized stage, and since, as far as we know, it is invariably fatal if this is not done, it is obvious that we should endeavor to ascertain the reasons for its present very high mortality, with the object of reducing this if possible. This has already been done to a certain extent in regard to tuberculosis, and it seems quite possible that methods similar to those adopted in the campaign against the latter disease may be successful in that against cancer of the uterus.

A study of the statistics indicates that as a rule a comparatively small proportion of the cases are still operable when they first come under the observation of the surgeon. The two chief reasons for this are: (1) Failure to recognize the early symptoms or to make a thorough examination on the part of the physician first consulted, and (2) ignorance of the importance of the early symptoms on the part of the patient, and consequent failure to consult the physician. In 1911 Jacobson, (2) of Toledo, Ohio, collected 2,765 cases of carcin-

1 Hoffman: Surgery, Gynaecol. & Obstetr. 1914, XVIII. 726.

oma of the uterus, 2,467 of which were from European literature, and 298 from the reports of American surgeons. Those of the European surgeons showed an average operability of 65.17 per cent., those of the American surgeons an average operability of 35 per cent. In 1912 Nagoya (3) reported an operability of 68.92 per cent. at the Münich Clinic. Neel (4) reports an operability of about 54 per cent. in Kelly's Clinic, Johns Hopkins Hospital, during the last five years. In 1913 Weibel (5) reported an operability of 50 per cent. in Wertheim's Clinic during the last fourteen years. From this it is evident that a large proportion of cases are inoperable by the time they reach the surgeon. In America from 46 to 65 per cent. are inoperable; in Europe from 32 to 50 per cent.

In the report of the American Society for the Control of Cancer, (6) published in 1913, it is stated that the chief reason why cases do not come earlier under the observation of the surgeon is not that the patients do not consult a physician, but that the first physician consulted has advised waiting for further developments, more especially pain. It is a well known fact that the onset of cancer of the uterus is very insidious, and that the appearance of marked symptoms is frequently delayed until the condition has been inoperable. It should be kept in mind that as a rule the first symptom is a watery discharge, which later becomes tinged with blood, and still later becomes atypical hæmorrhage. In almost every case of cancer of the uterus this history can be elicited, and many medical practitioners need to have this impressed upon them. Unfortunately many patients do not consult a physician until they are suffering from atypical hæmorrhage or from pain and the disease may be far advanced at this time. It is not at all uncommon to have statements from patients with inoperable cancer of the uterus to the effect that the first physician they consulted did not even make a thorough examination, and told them that the atypical hæmorrhage was simply due to the onset of the menopause. In some cases they have been treated by local application for what is described as "ulceration" of the uterus, the physician apparently not even suspecting that a dangerous condition was present, and that valuable time was being lost. The importance of never being superficial, and of making a careful examination in every case in which there is the slightest suggestion of cancer cannot be emphasized too strongly.

As the possibility of a cure is dependent upon early diagnosis and operation, a great responsibility in this connection rests upon the physician first consulted, and it is therefore his duty to positively exclude the presence of cancer before any other treatment is instituted. A conscientious and thorough examination should always be made, and if there is any question of doubt a piece should be excised from the cervix of scrapings taken from the uterus for microscopical examination. If this is to be done, it is advisable to make the examination under an anæsthetic, as otherwise the scrapings may be taken from the sound part of the uterus, and a false sense of security given. Any irregular menstrual flow should be investigated, and if the patient is past the menopause, the appearance of any discharge—whether bloody or not—demands immediate attention. If a positive diagnosis cannot then be made the patient should be kept under careful observation, and the importance of excluding cancer with absolute certainty should still be borne in mind.

I believe, however, that delay in consulting a physician is more frequently due to the insignificance of the early symptoms than to the carelessness either of the patient or physician. In many cases a patient puts off going to a doctor because she thinks that cancer cannot be present without producing pain, because she is afraid of a surgical operation, or because she is reluctant to submit to the necessary examination. The American Committee for the Control of Cancer suggests that a legitimate use can be made of publicity in the education of the laity in this connection by giving lectures, sending out pamphlets, etc., the work being done under the control of physicians. They also suggest the advisability of making an arrangement, by which Gov-

2 Jacobson: Journ. Amer. Med. Assoc. 1911, LVI. 96.
3 Nagoya: Inaugural Dissertation, Münich, 1912
4 Neel: Surgery, Gynaecology & Obstetrics, 1913, XV. 293.
5 Weibel: Surgery, Gynaecology & Obstetrics, 1913, XVI. 251.
6 Journal Amer. Med. Assoc. 1913, LX. 2019.

ernment laboratories would be available to every practitioner for the examination of suspicious tissue removed by curettage or discharge from the uterus, on the condition that the physician contribute to the value of the statistics by giving information of the subsequent progress of every individual case, and that if a woman can not afford to pay for such an examination it shall be done free of charge. On the other hand Boldt, a member of the committee, does not think that much will be gained by printing articles on cancer symptoms in the lay press, and is of opinion that such a proceeding is much more likely to increase the number of neurasthenic women with leucorrhœa, who will imagine they are suffering from cancer.

Trained nurses, or partially trained maternity nurses, are not infrequently first consulted by patients with cancer of the uterus, and probably much could be accomplished by urging them to advise such women to at once consult a physician if there is irregular hæmorrhage. The importance of any abnormal discharge from the vagina should be impressed upon students of medicine and nurses in training.

Several years ago a campaign for the education of physicians, midwives and the general public in the symptoms of uterine cancer was started in East Prussia by Winter (7). The methods adopted were the following:

1. All general practitioners throughout East Prussia were instructed in the methods and importance of early diagnosis.

2. Midwives were instructed to send suspicious cases immediately to the physician.

3. Articles were published in important newspapers, informing the public as to the early symptoms, and urging them to seek immediate advice.

The reports obtained showed that in the period from 1889 to 1902 the patient was examined internally by the physician at the first consultation in 46 per cent. of the cases, whereas in 1910 this was done in 100 per cent. In 1889-1902 the midwife sent the case immediately to the physician in 32 per cent. of the cases; in 1910 in 55.8 per cent. In 1889-1902 the patient sought advice soon after noticing the first signs of cancer in 62 per cent. of cases; in 1910 in 69.8 per cent.

The good results of this campaign have led to the formation of similar organizations throughout Europe and in the United States.

Knorre (8) reports the results of a similar campaign in the Baltic States of Russia, commencing in 1908. Three years later replies to a second series of letters showed the following results in 504 cases:

39 per cent. consulted the physician within three months after noticing the symptoms, as against 15 per cent. at a previous investigation. In 5 per cent. only had local treatment, douches, etc., been prescribed without any internal examination by the physician first consulted. Only a few physicians reported any increase of nervousness in regard to cancer.

The treatment which has been generally adopted of late is Wertheim's radical operation. In 1911 Jacobson collected 2,765 cases, 2,467 of these being from European literature, and 298 from the reports of American surgeons. As regards these last 298 cases, some of them were obtained from personal communications in regard to unpublished cases. The American surgeons reported their cases either as Wertheim operations, or as "abdominal hysterectomies, with free dissection of the ureters and wide excision of the parametrium, removal of a portion of the vagina and of any enlarged glands present."

The primary mortality of the whole series was 19.45 per cent., the average primary mortality of the European surgeons 19.94 per cent., and that of the American surgeons 15.77 per cent. The mortality of a few operators, when taken separately, is considerably less. Thus:

	Per Cent.
Zweifel	10.8
Kline	12.8
Döderlein	14.3
Wertheim (in last 200 cases)	10.0

Taylor (11) reports a series of operations from 1910 to 1912. In 1910 he operated upon 70 per cent. of all cases examined; in 1911 on 68 per cent. He reports 28 cases with a primary mortality of 11 per cent., 7 only, or 25 per cent. being alive and well two years after operation.

7 Winter: Zeitschrift für Krebsforschung. 1911. Band X. 343.

8 Knorre: Petersb. Med. Zeitschr. 1913. XXXVIII. 30.

During the ten years from 1902 to 1912 Peterson (12) examined 218 cases of carcinoma of the uterus (cervix and fundus), only 51 of which (23 per cent.) were operable. The operations were all by the abdominal route, and the diagnosis was confirmed microscopically. The primary mortality in the 40 cervical cases was 22 per cent., and in the 11 cases of cancer of the body of the uterus 9 per cent. In the 41 cases which he has been able to keep under observation there have been eleven recurrences. Of eight cases operated upon more than five years ago three have died from recurrence, and five remain alive and well (3 cervical, 2 cancer of fundus).

Taussig (13) reports 60 radical operations, 23 being his own cases, the 23 representing a total number of 123 cases examined (operability 19 per cent.). The primary mortality in the 60 cases was 30 per cent. There were 12 recurrences within the first year, three others subsequently. Only 14 of the cases remaining free from recurrence were operated upon more than five years ago. (23.3 per cent.).

Neel reports the results from Kelly's Clinic, Johns Hopkins Hospital, Baltimore, during the period between 1900 and 1912. The percentage of operability has increased from 51.7 per cent., as reported by Cullen in 1893-99, to 54 per cent. 136 cases have been operated upon, with a primary mortality of 20.5 per cent., reduced during the last five years to 12 per cent. Of these 61 cases, operated upon more than five years ago, have been kept under observation. Fourteen are alive and well, one has died of intercurrent disease, and the others show signs of recurrence. Cullen (14) reports six cases, which are alive and free from recurrence, the period since operation ranging from six and a half to thirteen years.

Faure, (15) of Paris, whose experience extends over sixteen years, has operated upon about 250 cases of cancer of the cervix. One of the patients is still alive and well fourteen years after operation, and a very considerable number of them have remained without recurrence for periods varying from five to ten years after operation.

Weibel (16) reports the results in 1,430 cases admitted to Wertheim's Clinic during the last fourteen years, 684 of which were inoperable. The radical operation cured permanently a fifth of all the cases examined in the Clinic, 43 per cent. of all operated upon, and 53 per cent. of all surviving operation. In the last 175 operations primary mortality has been reduced to 9 per cent.

Berkeley (10) believes that in early as compared with late cases the primary mortality is 6.8 per cent. and 26.7 per cent.

The great disadvantage of Wertheim's operation is that the primary mortality is so great, and it does not appear likely that much further reduction in it is probable. The operation is difficult, extensive and dangerous, and the end results have not been sufficiently good to justify its extensive adoption. Weibel, who reports the results in Wertheim's Clinic, states that they are opposed to too radical widening of the indications for the operation on this account, more especially if the ureter is embedded in the carcinoma. Hope of improvement in the results in operation for cancer of the uterus lies rather in getting the cases early than in any possible extension of the operation.

Some years ago Byrne (17) reported excellent results from treatment by the actual cautery, so good in fact that they have never been equalled by any of the various operations devised by Wertheim, Schauta and others. At the International Medical Congress at Budapest in 1909 he stated that he had treated 237 cases by this method, the operability being 100 per cent. There was no primary mortality. Unfortunately, according to his own account he has lost sight of a considerable number of these cases, but in 65 cases which had been kept under observation for over three years there was no recurrence when last heard from. This he regards as permanent cure. In 46 cases, kept under observation for five years or more, there was also no recurrence when last heard from. This he regards as absolute cure.

11 Taylor: Surgery, Gynaecology & Obstetrics, 1912, XV. 141.
12 Peterson: Surgery, Gynaecol. & Obstetr. 1912, XV. 135.
13 Taussig: Surgery, Gynaecology & Obstetrics, 1912, Vol. XV. p. 141.
14 Cullen: Progressive Medicine, June, 1913, p. 207.
15 Faure: Archives Mensuelles d'Obstêriques, 1912, I. 149.
16 Weibel: Zentralblatt für Gynäkologie, 1913, 1442.
17 Byrne: Internat. Med. Congress, Budapest, 1909.
10 Berkeley: Cited by Jacobson.

Recently Dr. J. F. Percy (19) has published articles, in which he describes the technique of a method which he has been using for some considerable time with satisfactory results. In inoperable cancer of the uterus and vagina he employs the red heat of the thermo-cautery. In order to regulate the heat in the parametrium, more especially in carcinoma of the corpus, a laparotomy is done, and the hand of an assistant inserted. If utero-vesical or utero-rectal fistulæ supervene they heal spontaneously on cicatrical contraction. Vesico-vaginal and recto-vaginal fistulæ are much more serious, and in order to avoid such complications Percy has devised a special water-cooled speculum. He has also devised a special electric cautery, which is capable of generating a great amount of heat.

The results of experimental laboratory work indicate that cancer cells are destroyed by a lower degree of heat than ordinary tissue cells, and the principle of Percy's method is to apply in the first place a degree of heat sufficient to destroy the macroscopical mass, and in the second place to have the heat penetrate sufficiently to destroy also any outlying cancer cells. If this method has been of so much service in inoperable cancer of the uterus, why should it not be in many cases a satisfactory substitute for the difficult and dangerous operations which are now employed, which entail such a high primary mortality, and have not particularly encouraging end results?

Percy has, in a number of cases, been troubled by severe hæmorrhage after his operation. This can be overcome by ligature of both internaliliac arteries, the further advantage being gained of cutting off the blood supply of the growth.

I have tied both internal iliac arteries in Wertheim's operation in six cases, and in Percy's operation once, and have had no bad results whatever from doing so, and no necrosis of any of the parts. Wertheim's operation is simplified very much by this procedure and the time in operating very much reduced. The anastomotic circulation seems to be so good that this modification can be carried out without danger. My opinion is that in future the operation of choice for cancer of the uterus will be Percy's method, preferably cauterizing two or three times at intervals of about a week, the abdomen being opened at the final cauterization and the internal iliac arteries tied then.

19 Percy: Surgery, Gynaecology & Obstetrics, Vol. XVII, No. 3.

THE ATTITUDE OF THE SURGEON TO THE PREVENTION OF CANCER

By HERBERT A. BRUCE, F.R.C.S., Eng.

CANCER is one of the most common causes of death in elderly people; in fact some writers claim that since the mortality of tuberculosis has been to some extent reduced by the measures taken to prevent the disease, it is the most common cause. From a tabulated statement of the mortality from cancer, between 1881 and 1910, issued by the Registrar-General for England and Wales, including the various countries of Europe, and also Australia and New Zealand, it appears that in most of these countries it has steadily increased during this period. Werner, (1) who has examined the vital statistics of Baden for the last twenty-five years, finds that during this period the number of deaths from it annually has increased by about a third, the increase being as high as 50 to 60 per cent. in persons over sixty years of age. It is very slight in those between forty and sixty, and there is no increase at all in those under forty. Bertillon (2) has made a similar investigation in France and other European countries, and is of opinion that in most of those with reliable statistics cancer has doubled in frequently during the last thirty years. His statistics, in common with those of most other writers, indicate that the increase effects preeminently cancerous disease of the digestive tract, mainly the stomach and rectum.

1 Werner: Münchener Medizinische Wochenschrift, 1911, LVIII.

2 Bertillon: La Presse Médicale, 1911, No. 38, 385.

Mr. R. L. Hoffman (3), at the meeting of the American Committee for the Control of Cancer in November, 1913, stated that of the 70,990 deaths from cancer in the registered areas of the United States during 1913, 39.5 per cent. were from cancer of the stomach and rectum. Bertillon suggests the possibility that the comparative frequency of the disease in the digestive tract may be due to the nature of the food taken or the manner of eating it, but the extensive investigations which he has made in this connection have afforded no confirmation of this theory.

In view of this high mortality, it is obvious that prevention or arrest of development of this terrible disease is a very important problem. Extensive experimental investigations are being carried out with the object of discovering some method of dealing with it other than by operation, but at present the only effectual means we have of arresting the spread of malignant degeneration is by surgical excision of the tissues involved at an early stage, when the disease still remains localized. It is true that a few cases have been reported from time to time, in which spontaneous cure is said to have occurred, but it is more than problematical as to whether there is such a thing as spontaneous cure of cancer, and it is probable that in all these cases retrogression of the symptoms was only temporary, and that recurrence and metastasis subsequently led to a fatal result. This being so, it is obvious that in dealing with the reduction of the mortality of cancer our propaganda must be directed towards educating both the profession and the public, in a similar manner to that which has contributed so greatly to the reduction of the mortality from appendicitis and peritonitis, in the detection of the earliest symptoms and signs of cancer, and in the full appreciation of the grave risks which are incurred by delaying appropriate treatment.

Our attitude in regard to the problem of cancer is influenced by the fact that the disease invariably commences as a strictly localized lesion, and that for a certain length of time the cancer cells do not spread beyond this circumscribed area. By a surgical operation, undertaken at this early stage, we may therefore hope to remove all the cancer cells from the body, and thus give the patient a reasonable chance of permanent cure. If operation is not done, however, at this early period the cancer continues to develop, the cells penetrate into the surrounding tissues, and complete eradication becomes impossible.

In view of the fact that a very large proportion of cases of cancer can be cured if operated upon sufficiently early, the question naturally presents itself: Why should its mortality be so high, and apparently still increasing? Hartwell (4), gives the following reasons for this: (1) Carelessness and ignorance on the part of the physician; (2) careless and ignorance on the part of the laity, and (3) difficulty of diagnosis in some cases, more especially in internal cancer.

1. Let us consider for a moment or two the first reason, namely, carelessness and ignorance on the part of the physician. That this is in some cases responsible for delay in operation is indicated by the following statistics. Rodman (5) quotes the statements given below from the report of the Cancer Commission of Pennsylvania. Of 400 cases reported by physicians and surgeons throughout Pennsylvania, only 68 per cent. of superficial and 48 per cent. of deep cancers were operable when they came under the observation of the surgeon. In the superficial lesions the average time which elapsed between the detection of signs of cancer and operation was eighteen months, and in the deeper ones fourteen months; the average time between first consulting a physician and operation was from eleven months to a year. About one in thirty of the cases of cancer of the breast were not even examined at the first consultation with a physician, and in one case in six ointments, salves, etc., were prescribed. This needs no comment.

Hartwell states that the records of one of the large hospitals in New York show that 102 cases of carcinoma of the pylorus were admitted between 1905 and 1910, ten of which had previously been in a hospi-

3 Hoffman: Surgery, Gyn. & Obstetr. 1914, 1914, XVIII. 726.

4 Hartwell: Annals of Surgery, 1913, LVIII. 395.

5 Rodman: Annals of Surgery, 1914, LIX. 47.

tal for this condition. Seventeen had suffered from severe gastric symptoms for a year or more, and six others for six months. Only ten of the cases were operable, and in three only was radical operation successful.

In this connection I should like to refer to a case of cancer of the pylorus, which is under my care at the present time. The patient, J. Langer, aged forty-four, first presented himself at the Out-patient department of the Toronto General Hospital in October, 1913, complaining of gastric pain and vomiting. He attended the Out-patient department for three weeks. One year later he was admitted to the medical wards of the Toronto General Hospital, complaining of the same symptoms. He remained there from October 9 to October 27th. The history states that he had pain two hours after eating, relieved by eating, and also vomiting at various times. A diagnosis of hyper-chlorhydria was made, and he was discharged with the note that he was "improved." He was again admitted to the medical wards of the Toronto General Hospital on January 8th of this year, and it was not until February 9th that he was transferred to the surgical side, when I was asked to perform an immediate operation for pyloric obstruction, as the patient was then in a very weak state. He has practically retained nothing—even fluids—during this period, and as a consequence he was very much exhausted, with a very small weak pulse and was in no fit state for operation. However, with the aid of 100 ounces of interstitial saline, we were able to do a gastro-jejunostomy. At this time we found a carcinoma of considerable size in the pyoric end of the stomach, extending from the greater to the lesser curvature.

After the operation he was able to take plenty of nourishment, and improved so much that on March 9th we were able to do a partial gastrectomy, removing the entire growth, together with some enlarged glands along the greater curvature, and a considerable margin of stomach to the left side, as well as an inch of the duodenum. The stomach was removed from a line dropped from an inch to the right of the point where the gastric artery joins the stomach vertically downwards. The glands on the greater curvature were found to be carcinomatous, and the growth was adherent posteriorly to the pancreas, and a portion of the anterior capsule of the pancreas had to be removed with it.

He has made a splendid recovery, but, of course, one cannot speak with any degree of confidence as to its permanence, owing to the glandular involvement. This case is a fair example of the opportunity given to a surgeon in gastric cancer.

2. With regard to the second point, namely, ignorance and carelessness on the part of the laity, although there is no doubt that the general practitioner is sometimes to blame, this does not by any means apply to all cases. In many instances the patient is absolutely ignorant of the fact that certain symptoms and signs may be premonitions of cancer, and not being seriously inconvenienced by them for the time being does not think it necessary to consult a physician until the condition is so advanced that no benefit can be hoped for from operation. This applies especially to cancer of the internal organs, such as the stomach or rectum. Another reason for delay may be fear of a surgical operation.

3. The diagnosis may, in the early stage, be very difficult in cancer of the internal organs, as marked symptoms, more especially pain, are not infrequently absent until the condition has become too advanced for successful operative treatment.

It will thus be seen that the real problem is, not so much to improve the technique and extent of operation, but to educate the profession and the public in the importance of operation at the earliest possible moment after the appearance of the preliminary symptoms. With this object in view a Society has recently been formed in the United States by the American Medical Association, called the American Society for the Control of Cancer, (6) which aims at such education. The formation of this society was suggested by the success of the method adopted by Winter in East Prussia in regard to uterine cancer, and its scope has been extended to include that in other parts of the body. The society consists both of laymen and physicians, but all the work is done under medical supervision. Articles, written in

simple and popular language, containing information with regard to precancerous conditions and the preliminary signs of cancer, are published from time to time in some of the best known magazines, and in addition popular lectures are given by physicians. The carrying out of the work is on similar lines to those which have proved so successful in dealing with tuberculosis.

A similar committee has been in existence for some time at St. Louis, (7) under the direction of the Barnard Skin and Cancer Hospital, and is doing excellent work. Members of the staff of the hospital visit Medical Societies throughout the State, and also give addresses to Graduate Nurses' Associations, Visiting Nurses' Associations, etc. Pamphlets dealing with the subject are sent out, and popular lectures given. Every effort is made to impress upon practitioners, nurses and the women themselves the imperative necessity of at once seeking expert advice on the first indication of suspicious symptoms.

The cancer problem, therefore, as it at present stands, simply resolves itself into early diagnosis and operation. The only hope for the patient is in the recognition of the symptoms at a time when it is still localized and curable, and delay is practically certain to result sooner or later in death from this painful disease. A point which cannot be too strongly emphasized is that in the beginning it is localized and curable, whilst in the later stages it is neither. The possibility of cure by early operation suggests the desirability of intelligent co-operation of the medical profession and the public in a deliberate endeavor to reduce its mortality, and it is highly desirable that certain elementary facts in regard to it should be better understood than they have hitherto been. The importance of the early diagnosis of cancer should be impressed upon medical students, and they should be told to bear in mind certain suspicious symptoms. The public also should be enlightened as to the first signs of the disease, and as to the possibilities of cure in the early stages.

An enormous amount of experimental and clinical work has been recently done in the endeavor to discover some specific reaction positively indicating the presence of cancer, and many tests have been devised for the investigation of normal and abnormal body fluids, secretions and excretions. Although so far not one of these tests has proved to be absolutely pathognomonic, some of the reactions appear to be of sufficient value to justify more extensive trial, and should be employed in doubtful cases.

In education on the subject of cancer great stress should be laid on the recognition of precancerous conditions, which are often present for some considerable time before the lesion becomes transformed from a benign to a malignant one. Examples of these leucoplakia of the tongue, warts, moles, chronic ulcer of the lip, chronic diverticulum of the colon and chronic cystic mastitis. In the report of the Pennsylvania Cancer Commission, it is stated that such a transformation has been definitely proved in the case of all these lesions. Cancer has also been known to develop from gastric ulcer and lumps or nodules beneath the skin. All these conditions may be termed precancerous, as, although clinically cancer is not yet present, they may lead to it if no preventive measures are taken.

As the breast is a superficial organ it might reasonably be assumed that the diagnosis of cancer of it would be comparatively easy, but yet the reports of cases in literature show that a considerable number of them are not operated upon for a year or more after the first indication of a tumor has been observed. Of the cases coming to the Mayo clinic 25 per cent. are so advanced as to be inoperable, and Deaver (8) states that 31 of the last 200 admitted to his clinic already had extensive ulceration and metastasis.

Cancer in many parts of the body, including the breast and muscles, not infrequently produces no symptoms whatever in the early stage. In cancer of the breast a lump beneath the skin is usually the first thing noticed by the patient, and in most cases pain is slight or absent altogether until the condition has become too advanced for curative treatment. A lump in the breast, more especially in a woman

6 Journ. Amer. Med. Assoc. 1913, LX. 617.
7 Transactions Amer. Gynaecol. Society, 1912, XXXVII. 372.

over twenty-five, should always be regarded as a definite warning of cancer, and if treatment is delayed the chances of its becoming fatally malignant increase day by day. In some cases all of the diagnostic symptoms, such as retraction or elevation of the nipple, or enlargement of the axillary glands, are absent.

8 Deaver: Journ. Amer. Med. Assoc. 1913, LX. 795.

As we have seen from the report of the Pennsylvania Cancer Commission, however, the physician consulted is sometimes to blame for delay in operation, and in my opinion a physician who does not even examine a patient, who tells him that she has a lump in her breast, is guilty of criminal negligence. In cases in which a lump in the breast is unaccompanied by pain, both the patient and physician are sometimes to blame for waiting for this symptom, which, unfortunately, frequently does not appear until a very late stage of the disease.

As regards the results of operation in cancer of the breast, Judd (9) reports 708 cases operated upon Mayo's Clinic, with three deaths. Of those in which two years have elapsed since operation, 44 per cent. are alive and well, as are also 23.5 per cent. of those operated on ten years ago. Salmon (10) reports 33.5 per cent. of cures in 108 cases. Deaver traced 75 cases for more than three years. Sixteen, or 21.3 per cent., remained free from recurrence an average of seven years after operation, 37 have died from recurrence and 6 are now suffering from it. Of those remaining well after three or more years, Deaver states that in only 12 per cent. was there retraction of the nipple, in 18 per cent. attachment of the tumor to the skin, and that in none of the cured cases was the tumor adherent to the pectoral fascia.

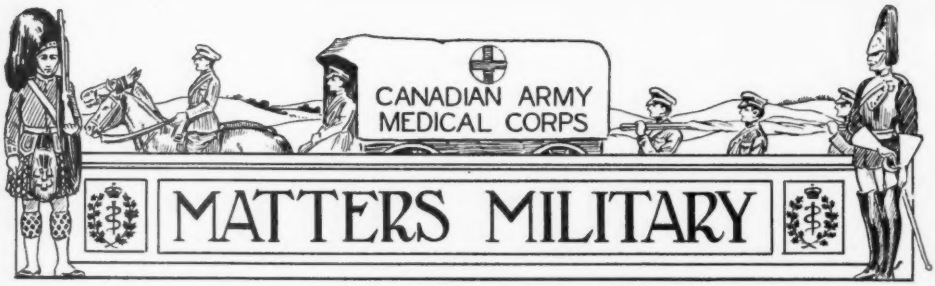
My opinion in regard to lumps in the breast is that every lump should be removed, whether of a benign or malignant character. In doubtful cases a section is made, the extent of the operation being dependent upon the result of this. MacCarty and others, including Upcott (11), Syms and Hartwell (12), claim that chronic mastitis is not infrequently a precursor of cancer, and that for this condition the breast should be removed.

Meyer (13) states that extensive involvement of the axilliary and infra-clavicular glands is not always a contra-indication to operation, and that from 40 to 50 per cent. of such cases, upon which he has performed a radical operation, are living, and have been under observation for a year or more.

Excision for local recurrence is as a rule only a palliative operation, and there is but little hope of ultimate cure. Recurrence after a radical operation should not, however, be regarded as invariably indicating internal metastasis, as it may simply mean a recrudescence in activity of the cancer cells of the primary lesion.

There is often considerable difficulty in the diagnosis of cancer of the internal organs. Blood in the secretions, however, should always be regarded as a definite warning, and indicates the imperative necessity of a most careful and thorough examination, supplemented if necessary by exploratory laparotomy. Several cases of gastric cancer which have come under my own observation have previously had treatment for years for gastric discomfort, which they describe as "indigestion," and a number of cases of intestinal cancer treated for constipation without the possibility of a malignant growth being suspected until the supervention of obstruction imperatively called for operation.

9 Judd: New York Med. Journ. 1912. XCV. 667.
10 Salmon: Archiv für klinische Chirurgie, 1913. CI. 573.
11 Upcott: Practitioner: 1913, XCI. No. 1.
12 Syms & Hartwell: Annals of Surgery, 1913, LVIII. 395.
13 Meyer: Amer. Journ. Obstetr. 1913, 774.

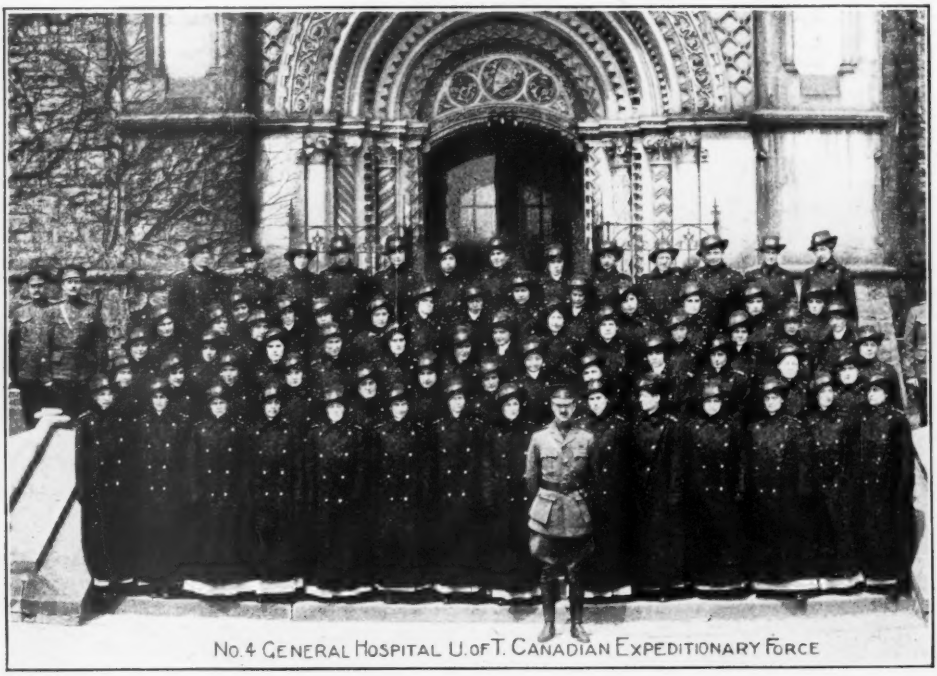


NO. 4 GENERAL HOSPITAL

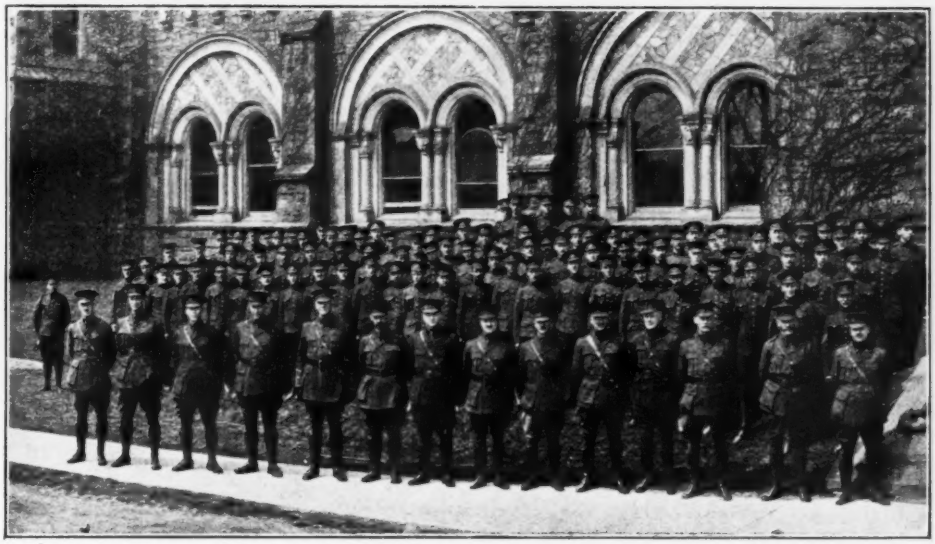
(UNIVERSITY OF TORONTO)

Canadian Expeditionary Force

FROM several Canadian Universities the offers of Hospitals for overseas service were made to the Minister of Militia. One of these came from the University of Toronto and was accepted. The initial offer was a hospital of 520 beds. The reply requested one of 1,040 beds and this the University was glad to comply with. The task of arranging the personnel and equipping such a large unit was no easy one but it was accomplished in record time and No. 4 General Hospital has now left Canadian shores. The response to the call for medical officers from the staff of the University was so splendid that more than double the number required were on the list. The request for funds brought into the coffers more money than had been asked. The ladies organized themselves at once for service and have been able to accomplish marvellous things in the equipping of the unit.

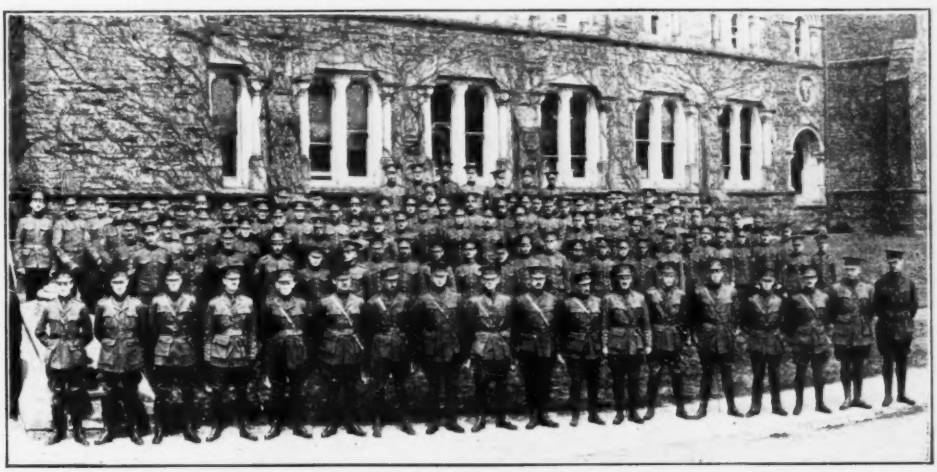


No. 4 General Hospital U. of T. Canadian Expeditionary Force



The total personnel of Officers, Nursing Sisters and men numbers 318 including 206 N.C.O.'s and men. Among these 206 there are perhaps fifty trained orderlies, fifteen or twenty experienced cooks. The rest of the men are made up of general handy men, including barbers, machinists, clerks, engineers, medical students, servants etc. There are in the ranks, five men who graduated with their M. B.'s this year. Most of these men hold the rank of Sergeant or Sergeant-Major. As well as these there are two graduate dentists and two or three graduates in Pharmacy. The X-ray department is going to be in change of Sergeant H. A. McTaggart, Lecturer in Physics at Toronto University., who has a graduate in Science as his assistant.

There are thirty-nine Officers including two Quartermasters and one Dental Surgeon. The seventy-two nurses will be under the supervision of Nursing-Matron A. Hartley, who has recently been in Quebec taking a special course in Military Nursing at the Military Hospital there.



It might be of interest to say that those in command think that their Hospital is going to be complete and efficient in every respect. In order to make it so they thought the purchase of an ice-machine would be almost essential, so they obtained a plant with a capacity of 1,000 lbs. per day.

Where the Hospital will be located is of course uncertain. Whether or not we will be in a permanent building or under canvas is a question.

The list of officers is as follows:

Lieut.-Col. J. A. Roberts, Commanding Officer.

Lieut.-Col. W. B. Hendry, second in command.

Capt. N. L. Yellowlees, Adjutant.

Surgical Department.

Lieut.-Col. A. Primrose	Capt. G. E. Wilson
Lieut-Col. W. McKeown	Capt. R. E. Gaby
Major E. S. Ryerson	Capt. F. E. Watts
Major W. J. O. Malloch	Capt. J. G. Gallie
Capt. B. P. Watson	Capt. H. Wookey

Medical Department.

Lieut.-Col. Graham Chambers	Capt. A. H. Caulfield
Lieut.-Col. A. R. Gordon	Capt. G. F. Boyer
Major C. S. McVicar	Capt. R. G. Armour
Major D. McGillivray	Capt. J. H. McPhedran
Major H. C. Parsons	Capt. S. R. D. Hewitt
Major D. King Smith	Capt. J. G. A. Campbell

Nose and Throat	Eye.
Major Gilbert Royce.	Capt. W. H. Lowry.
Genito-urinary.	Sanitation.
Capt. Robert Pearse.	Major J. A. Amyot.

Laboratory Department.

Capt. D. A. L. Graham	Capt. C. J. Imrie
Capt. N. C. Sharpe	Capt. T. G. Brodie
Capt. A. A. Fletcher	Capt. J. J. McKenzie

Dental Surgeon.	Anaesthesia.
Capt. George Gow.	Capt. H. J. Shields.

Quartermasters.

Capt. H. J. Middleton	Capt. L. T. Trump

The Nursing Sisters, whose names appear below, hold the rank of Lieutenant, and have been chosen from the graduates of the various Toronto Hospitals connected with the Medical Faculty of the University.

A. J. Hartley
M. L. Adams
K. Adams
M. J. Allwood
J. Alport
E. E. Augustine
P. B. Austin
A. B. Baird
M. Bastedo
M. A. Best
E. A. Brewer
E. N. Campbell
A. L. Campbell
S. A. Campbell
M. Carmichael
F. Chartres
A. N. Christie
E. Clarke
F. Conlin
A. F. Courtice
A. Cradock
M. Cummings
A. M. Darling
L. A. Davis
H. E. L. E. Dean
A. Doig
M. E. Dow
S. M. Driver
E. Dunn
C. H. Ellis
E. S. Elliott
S. E. Fellows
J. M. Ferguson
A. Fields
M. E. Fletcher
E. E. Fraser
A. V. Gamble
L. Gamble
M. F. Galbraith
L. E. Galbraith
G. A. Gray
A. M. Grindlay
A. Huston
E. M. Johnston
M. G. Lucas
J. M. Martin
H. P. MacCallum
M. McEvoy
L. McEachrin
E. A. McLeish
M. McCort
E. Morris
E. L. Moore
G. Muldrew
C. M. Oatman
A. M. Oram
M. E. Owen
R. G. Peterkin
M. I. Richardson
E. L. Richmond
I. Robertson
A. K. Ross
J. T. Scott
H. Sibbald
G. L. Spanner
W. J. Stagg
L. M. Stevenson
C. I. Stewart
A. M. Sterling
N. Turner
C. L. White
M. E. Wilkinson
H. Wood
C. M. Ellis

Miss M. G. Coxall has gone as secretary to Colonel Roberts.

This General Hospital is a type of unit which has been accepted from various centres in Canada, and these will all do splendid work in caring for the sick and wounded.

The Sanitary Inspectors' Association of Western Canada

President—E. W. J. Hague, Assoc. Roy. San. Inst. Vice-Presidents—Western Ontario, W. E. Stanley, Assoc. Roy. San. Inst.; Manitoba, W. F. Thornley, Assoc. Roy. San. Inst.; Saskatchewan, Thos. Watson, Assoc. Roy. San. Ins.; Alberta, J. J. Dunn, Assoc. Roy. San. Ins.: British Columbia, F. L. Glover, Assoc. Roy. San. Ins. Executive Committee—W. J. T. Watt; Cert. Inc. San. Assoc., Scotland; P. B. Tustin, Assoc. Roy. San. Inst.; D. Little, Winnipeg; E. C. Brown, Winnipeg. Secretary-Treasurer—Alex. Officer, Cert. Inc. San. Assoc., Scotland.

THE CHINESE LAUNDRY IN WINNIPEG

By ALEX. OFFICER, Cen. Inc. San. Assoc., Scotland

Tenement Inspector Winnipeg Health Department

Read before the Winnipeg members

THERE seems to be no doubt that the Chinaman has come to Canada to stay, and probably there are few towns where he is not found.

There are hundreds of Chinese in Winnipeg and the great majority of these are engaged in laundry work. A considerable number, however, are engaged in other occupations such as dry goods, groceries, tailoring, and do a good business with their countrymen in outlying districts besides supplying their city customers. A number are also engaged in restaurants and hotels.

It is remarkable that among those engaged in laundry work, few were accustomed to this class of work in their own country, but it is still more remarkable how quickly they adapt themselves to, and succeed in, their new profession.

There are at present about 150 Chinese hand laundries in the city and considerable business is done in them. No females are employed, the work being done exclusively by Chinamen. As the habits, mode of living, and standard of cleanliness of the Chinese are, to say the least, much lower than our own, it is fitting that there should be strict supervision by the Health Department of all premises occupied by them. This is all the more necessary in Chinese laundries since many people entrust their laundry work to those employed in the business.

It is only within recent years that a license was required to conduct a laundry. Up till that time almost any old building was considered by the Chinaman suitable for the business. Indeed, after a building had ceased to be of value as a dwelling it was considered good enough for a Chinese laundry. It therefore, not infrequently happened, that after a building had ceased to be occupied as a dwelling on account of general dilapidation it was soon used for this purpose.

In 1909 regulations were drafted and put into effect by the Health Committee. Systematic inspections were made, and these revealed bad conditions generally. Common defects included defective drainage and sanitary fittings, broken and defective floors, walls and ceilings, badly lighted and ill-ventilated rooms, filthy paper on walls and ceilings, insanitary cellars, wooden wash tubs, etc. Some of the workrooms were found to be used for cooking and sleeping purposes, and many of the bedrooms overcrowded. In one case a washroom which was also used as a living room, contained a water closet which was not partitioned off. A revolution in conditions obtaining was effected by the enforcement of the regulations, which read as follows:

Regulations of the Health Committee, re Laundries.

Under the provisions of By-Law No. 5,456 all applicants for laundry licenses must obtain from the Medical Health Officer a certificate that the premises in which it is proposed to carry on such business are suitable and satisfactory for the purpose, and that they do not contravene any laws, by-laws, or regulations governing same.

Until such certificate is issued the License Inspector shall not issue any license in respect of any such place.

The following regulations are hereby made and approved by the Committee on Health of the City Council as applicable to such premises, and all intending applicants for license, or for renewal of license, must comply with the same:

1. *Plumbing and Drainage*—There shall be a proper and sufficient number of water-closets, sinks and lavatories as required by Sections 110 and 111 of By-Law No. 4,274, and the same shall be installed in a manner satisfactory to the Health Officer and shall be adequately lighted and ventilated.

The sanitary conveniences shall be under cover and so partitioned off as to insure privacy, and if for the use of females shall have proper doors and fastenings. They shall be so arranged and maintained as to be conveniently accessible to all persons employed therein at all times during their employment.

Where persons of both sexes are employed the conveniences for each shall be so placed or so screened that the interior shall not be visible (even when the door of the convenience is open) from any place where persons of the other sex have to work or pass; and if the conveniences for one sex adjoin those for the other sex, the approaches shall be separate.

All laundry tubs shall be properly tapped, vented and sewer connected.

2. The premises throughout shall be maintained at all times in a thorough state of repair, in a scrupulously clean condition and free from vermin.

Every laundry shall be efficiently lighted and shall be so ventilated as to render harmless all gases and dust.

3. The workrooms shall be at least nine feet in height and be supplied with windows in sufficient number and size to ensure a plenteous supply of light and air. The windows must open into the open air and must be arranged so that they can be opened for ventilation.

4. The use of wooden and metal lined tubs is prohibited. All laundry tubs and wash troughs shall be made of porcelain, earthenware, enamelled iron or other impervious substance approved by the Health Officer.

5. All tubs, utensils, machinery, and all vehicles used for the transportation of laundry work shall at all times be kept in a perfectly clean and satisfactory condition.

6. The walls of the workrooms shall not be papered, but must be painted, varnished, or of smooth surface so as to be easily cleaned.

7. The floors of all wash rooms shall be rendered impervious to water.

The walls of wash rooms must be rendered impervious to a height of six inches above the floor, except at doorways, so that said floors can be flushed or washed out without leaking. If wash tubs are against walls, the walls behind same shall be rendered impervious to a height of 18 inches above the top of the wash tubs.

8. If the building is not used for laundry purposes exclusively, the rooms used for cooking and sleeping shall be entirely separate from the work rooms. No person shall at any time occupy or permit others to occupy any workroom for a sleeping or living room.

9. The moistening of clothes by spraying water from the mouth is strictly prohibited.

10. No person suffering from, or who has recently suffered from or been in contact with any case of infectious or communicable disease shall be permitted to work in any laundry.

11. The proprietor, manager or person in charge of any laundry shall give immediate notice to the Health Officer of any case of infectious or communicable disease occurring on the premises.

12. No proprietor, manager or employe of any laundry shall knowingly receive from, or remove any clothing from any premises where there exists or has recently existed a case of infectious or communicable disease.

All licenses will be issued conditionally on the foregoing regulations being strictly observed throughout the period for which the license is granted. Constant supervision will be maintained by the officers of the Department and licensees will be required to obey and carry out any instructions given by them relative to the sanitary condition of the premises.

Under Section 7 of By-Law No. 4,274 these regulations become a part of the said by-law, and any person violating the

said regulations may be prosecuted for such violation.

(Signed) .....
Medical Health Officer.

Adopted by the Committee on Health this fourth day of March, 1909.

These regulations are now incorporated in the Manitoba Public Health Act and apply not only to Chinese, but to all laundries.

Several disputes arose regarding the establishment of new laundries in residential districts of the city, and as a result a complete set of forms was drawn up and adopted by the City Council.

A form containing the following information is now given to applicants who desire to establish a new laundry:

Information for Applicants Desiring to Establish a New Laundry.

1. Before establishing any laundry it is necessary that the consent of the City Council be obtained.

2. Applicants shall call at the City Health Office, City Hall, and fill in and sign the proper form provided for that purpose. They will then be given a form of petition to be signed by the owners within a radius of 100 yards measured from the intersection of the diagonal lines joining opposite corners of the lot on which it is proposed to establish the laundry. This petition should state that they have no objection to the establishment of such laundry.

3. The petition should then be returned to the Health Officer and shall then be referred to the Assessment Commissioner, who shall report back to the Health Officer stating whether such petition is sufficiently signed. The Assessment Commissioner shall, in determining the sufficiency of the petition, count the signature of each owner within the radius above specified, only once. The value of both the lands and buildings within said radius shall be considered and such petition must contain favorable signatures of owners representing at least 75 per cent. of all property within the aforesaid radius. The petition must be signed by three-fourths of the owners in number, and the Assessment Commissioner shall take cognizance of the signatures of registered owners only.

4. The Assessment Commissioner shall, upon examining the petition report back to the Health Officer stating whether such petition is sufficiently signed or not. If the Assessment Commissioner report that the petition is sufficiently and properly signed, the Health Officer shall then forward the petition to the Council with his recommendations thereon.

5. If the City Council decides that such laundry may be established, the Health Officer will then cause an inspection of the premises proposed to be occupied to be made, and the applicant will then be furnished with instructions *in writing* signed by the Health Officer as to what improvements are necessary in order to make the premises comply with the provisions of the Public Health Act regarding laundries.

6. After the required alterations and improvements have been made the applicant must notify the Health Officer, and a further inspection will be made, and if the premises are then found satisfactory the Health Officer will issue his permit, which when presented to the License Inspector will enable the applicant to obtain his license.

7. No applicant shall occupy any premises as a laundry or proceed to make any alterations, improvements or repairs, to any building in respect of which an application has been made to the City Council until the City Council shall have favorably considered such application and inspection has been made by the Health Officer. Any instructions given as to work required will be given in writing and any variation of such instructions shall also be in writing.

Applicants for permits for new laundries must therefore read these instructions carefully and govern themselves accordingly.

Any person establishing a new laundry without first obtaining the consent of the City Council will be prosecuted and is liable, under the provisions of the Public Health Act, to a penalty not exceeding $250.00 in respect of the establishment of such laundry, and $10.00 per day for each day on which it is operated.

Laundries Already Established.

The licenses for these are renewable every year on the 1st of June. Every person intending to apply for a renewal of his license shall make application at the Health Office not later than May 1st in each year.

An inspection will then be made of the premises and written instructions given as to what improvements (if any) will be required before a permit is granted by the Health Officer. *No verbal order of any member of the Health Department shall be valid or binding upon the city prior to the issuance of the license.*

(Signed) .....
Health Officer.

Approved by the City Council, June 12, 1914.

Application to establish a new laundry as per section 2 of the above, is made on a form framed as follows:

Application for Permission to Establish a New Laundry at Premises No
Date.....

The Mayor and Members of the City Council of the City of Winnipeg:

Gentlemen,—I hereby beg to make application for permission to establish and carry on the business of laundering at premises No.....

I attach hereto a letter signed by three-fourths of the owners within a radius of one hundred yards from the said premises in which they state that they have no objection to such laundry being established.

It is understood that if permission is granted I will, before occupying same, make the premises comply in every respect with the provisions of the Public Health Act governing laundries, but that I will not proceed to effect any alterations or improvements until such time as I am notified that your consent has been granted, nor until the Health Officer has made an inspection of the proposed premises as to their suitability and has given me instructions in writing regarding any alterations required.

.....Applicant
.....Address

Application No.....

After this form has been filled in and signed the applicant is given a petition form or letter framed as undernoted:

Petition in Favor of the Granting of Permission to Mr. ..... to
Establish a New Laundry at Premises No. .....
.....191

To the City Council of the City of Winnipeg:

Gentlemen,—We, the undersigned, owners of premises within a radius of one hundred yards of No. ....., hereby state that *we do not object* to the establishment of a new laundry at such premises.

No.	Street.	Description of property	Owner

When this petition has been reported on favorably by the Assessment Commissioner both are sent by the Health Officer to the Council. If sanction is given by the Council for the establishment of the business, the work required to be done is specified in a form as follows:

Specification of Repairs, Alterations or Improvements Required at Premises No. .....for Which a Permit Has Been Applied for to Conduct the Business of Laundrying.
.....191

Mr.....

Dear Sir,—Regarding your application No. ....., dated ....., for permit for laundry at premises No. .....

I beg to notify you that before such permit can be granted it will be necessary for you to execute the following works:

.....
.....

As indicating the difficulty in obtaining permission for the establishment of new laundries it may be noted that of 20 applications during 1914 only 8 were approved by Council, the other 12 having failed to obtain the necessary consent of adjoining owners.

Each year before the license is renewed applicants call at the Health Office and fill in the following form:

Application to Health Officer to Carry on the Business of a Laundry Already Established.

Dear Sir,—I intend to apply for a license to carry on the business of laundering at premises No. .....

I understand that before such license can be obtained I must produce to the License Inspector a Certificate signed by you stating that the above premises are suitable and satisfactory for the purpose, and that they do not contravene any laws, by-laws or regulations governing the same.

I shall be glad, therefore, if you will inform me what repairs, alterations or other improvements are required to these prem-

ises before you can issue such permit, and also whether there are any further requirements of your department in respect of such business.

.....Applicant

.....Address

After the above form has been filled in inspection is made of the premises and a specification of repairs, alterations or improvements given to the applicant, and the license is not renewed until the work specified has been completed. This specification and the application form are made in duplicate.

We have succeeded in obtaining a comparatively high standard in these laundries; indeed a number of those most recently established have been specially fitted up for the purpose. The Chinese as a class are ready and willing to comply with our requirements. Many of them go to considerable expense to fit up their premises, as the owners of the buildings will seldom assume any expenses. In several instances the Chinamen have purchased land and buildings of their own. Needless to say, it is necessary to have constant supervision of the Chinese laundry, and, while we do have to institute legal proceedings occasionally, these are not now so frequent as formerly. A card is placed in all bedrooms indicating the number of persons who may occupy same and verbal instructions are also given. Night inspections are made to ascertain whether there is any overcrowding, and occasionally prosecutions are the outcome. The Chinaman is very artful, however, and will endeavor to dodge the inspectors by hiding in washtubs and the cellar. On one occasion two men were found hiding behind some clothes in a clothes closet, and they were only discovered by reason of their lower extremities not being covered. In another case four men got out of a back window when the inspectors called at 2 a.m. and remained in an outhouse for twenty minutes. The inspectors found some warm bedclothing on the floor and were suspicious that this had been in use just prior to their visit. A search resulted in the men being discovered in the outhouse with practically no clothing and in a temperature of 20 degrees.

The writer does not know the conditions obtaining in other cities, but feels sure that our Chinese laundries will compare favorably with those of almost any city on the continent. A number are still in old buildings, but there are sewer and water connections in them all, and the sanitary conditions are still improving.

MONTHLY JOTTINGS

THE Executive were very sorry to learn of the death of Mr. Walter S. Barugh, one of our members who was killed whilst on active service in France. Mr. Barugh was Sanitary Inspector of the Town of Transcona, near Winnipeg. He leaves a wife and two small children, one of whom he had never seen.

We note that Dr. R. M. Simpson, Chairman of the Board of Health for the Province of Manitoba, is to go to the front and take charge of a large hospital. We wish the genial doctor the best of luck.

The Executive held a meeting on the 21st of April and debated for a considerable time the question as to whether or not an Annual Meeting of the Association should be held this year. We had consulted as many of the members as possible and found that the general feeling was in favor of postponing the meeting until next year and this was the course finally adopted.

Mr. T. B. Hetherington, one of our members, has been appointed Sanitary Inspector for the Town of Transcona in place of Mr. Barugh, killed whilst on active service.

The Secretary says that there are some members who have not yet renewed their subscriptions. Now, we admit that times are hard, but we need a little money to carry on the work of the Association. Send along your subscription.

We are glad to note that in one or two advertisements appearing recently for Sanitary Inspectors it was stipulated that only qualified inspectors need apply.